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Historical society

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NUMBER 1.

THE INDUSTRIALIST.

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STATE AGRICULTURAL COLLEGE

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

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HISTORIC NOTES ON DRAWING IN THE PUBLIC SCHOOLS. I.

BY PROF. J. D. WALTERS.

AS a branch of American school instruction, drawing is a child of the present generation. It has now found its way into every well organized school, but its entrance was not undisputed, nor its stay entirely unmolested.

Of the methods of art instruction among the ancients, we know almost nothing. The first efforts to popularize drawing by methodical teaching were probably made during that grand period of awakening, the 15th and 16th centuries. At that time, the numerous monasteries of central Europe began to give increasing attention to such worldly matters as architecture, painting, carving, and goldsmithing, and as a result drawing became a branch of instruction in many of their schools; *Pier della Francesca*, of Umbria, Italy, 1423-1509, wrote his textbook on artistic perspective; *Albrecht Durer*, of Nürnberg, Germany, in 1524 published his work on "Mensuration," and four years later his work on "Proportion," and *Heinrich Lawensack*, of Frankfurt a. M., in 1563, prepared his works on "Construction in the Plane by Means of Compass and Straight Edge," "Perspective," and "Proportions of Man and Horse." Yet, in all of these efforts the purpose was of a utilitarian rather than pedagogical character, — the production of master builders, carvers, and decorators, who should eclipse those of other countries or other sections. As an operative factor in general education, we do not find drawing until the second half of the last century in the philanthropic schools of *Basedow*, *Salzman*, etc.

It is interesting to note how highly the educational value of drawing was appreciated by many thinkers and educators of the intervening period. Two hundred and fifty years ago *Jah. Amos Comenius* of Sweden, in his "Kindergarten" says, "Children should be induced to draw much, so that they may be able to freely represent points, lines, crosses, circles, etc., with chalk or charcoal as early as the third or fourth year. This may be done without difficulty if undertaken in a gradual and playful manner. Their hands will easily become able to handle the tools and to make movements, and they will also learn what a point or a line is—a great gain for their teachers of more advanced work." In his "Orbis Pictus," the same writer says, "Permit the children to copy pictures, if they wish to do so. It will teach them to observe closely; it will develop their aesthetic feelings, and train their hands, all of which is a great gain."

In the second half of the 18th century, it was, above all, the advanced thinker *Jean Jacques Rousseau* of Geneva, Switzerland, who, in his work "Emil," became the advocate for rational instruction in drawing as a means of general education. He says, "My pupil should devote himself to the study of art, not for the sake of art, but for the sake of developing his eye and hand; it makes but little difference what special manipulations he may be able to perform, if he acquires the acuteness of his senses and the beneficial habits of his body which these exercises will produce."

The importance of drawing in the harmonic education of the pupil was fully recognized by another noted Swiss, *J. Heinrich Pestalozzi*, the father of modern pedagogy. He considered the study of form as the chief means for the growth of the powers of perception, reasoning, feeling, and expression. Directly, he did but little for drawing. He possessed no skill in delineating, but his clear conception of the proper scope and methods of instruction have become the foundation and frame-work for others to build upon. In his work, "Wie Gertrude ihre Kinder Lehrt," Pestalozzi laid down the principle, that "the foundation of all real development is not so much a matter of the hand as of the innermost powers of the mind." Again, "Nature does not give lines to the child; she gives him things. The lines must be introduced that he may learn to analyze the object, but in order to let him see the lines for himself the thing must not be removed." He advised to begin school instruction in drawing with plane figures and ornaments, and to end it by drawing from simple objects or models. The ideas of Pestalozzi received methodical completeness through his pupil, *Johannes Ramsaur*, but in spite of the rapid progress which the Pestalozzian school of pedagogy made, the results in the schoolroom were only meager. Popular education lacked means—good teachers, proper schoolrooms, well made textbooks, and ample funds.

While the disciples of Pestalozzi were spreading his postulates in central Europe, *Peter Schmid* of Berlin, in 1823-33, issued his famous textbook series, "Naturzeichnen," in which he advocated almost directly opposite methods. Schmid began his ideal course by working from the object, reasoning that originally drawing started by imitating nature. The first part of his work deals with object drawing of polyhedrons; the second, with the representation of solids having curved surfaces; the third, with free-hand and linear perspective and projection; the fourth, with shades and shadows. Schmid began where Pestalozzi ended; i. e., with the perspective representation of simple objects, and it may be added that the controversy between the respective followers of Ramsaur and Schmid has raged with unabated vigor ever since, one party advocating for primary work the drawing of plane figures, the other the drawing of objects.

In Paris, the brothers, *Alexander* and *Ferdinand Dupuis*,—who in 1835 founded a private academy for advanced pupils in which they used drawing models of wood, plaster, and tin,—became the founders of a system similar to Schmid's. Yet, highly satisfactory as were their results in the high schools of France, there was no possibility of engrafting the method upon the primary schools. The indirect outcome was that a number of works on object drawing were published, striving to substitute highly artistic lithographs for the real object or model, and that the copying of insufficiently understood plates began to flourish worse than ever. The common schools tried to do art academy work.

This state of things did not change until during the fifties such educators as *B. Weisaupt* in Munich, *Herdle* in Stuttgart, *Stuhlman* in Hamburg, and *Troschel* in Berlin, the latter with his "Monatsblätter zu Förderung des Zeichnenunterrichts an Schulen," began to make propaganda for more rational methods of instruction, and societies of drawing teachers were organized all over central Europe. In about 1860, drawing was taught in, perhaps, every city school of Germany, Switzerland, Holland, Belgium, England, and northern France, but the first country that made instruction uniform by law was Austria, where in 1874 a decree was issued requiring that in all classes of the public school system from four to six hours per week should be given to this study. This decisive action was rapidly followed by other European countries. At the beginning of the fourth quarter of the century, "the battle for official recognition was fought and won," and the work of adjusting ways and means to ends could begin in an orderly and progressive manner.

In the common schools of France, drawing was made obligatory in 1882. The decree requires that the teaching shall occupy two or three lessons each week. The programme indicates, as matter for the elementary course, the drawing of lines and the first principles of designing. For the intermediate course, curves of a geometrical or conventional character; copying from relief ornaments; the first notion of geometrical drawing; use of the ruler, compass, triangle, and protractor. For the higher course, elementary work in historic ornament, drawing of the human form from cast fragments, and the principles of shading and coloring.

The next article will speak of the introduction and growth of drawing in the American schools.

College Growth for 1896.

[Report of the President of the Kansas State Agricultural College to the Secretary of Agriculture and the Secretary of the Interior, as required by act of Congress of August 30, 1890, in aid of Colleges of Agriculture and Mechanic Arts.]

No changes have been made in the course of study, or in methods of instruction. Arrangements have however been entered into by which those students who choose to lengthen their course by a year may do so by adding electives during the last two years in advanced study of the sciences. In this lengthened course a mention of special proficiency in lines of study pursued at least one year is made upon the diploma of graduation. The largest class in the history of the College graduated this year, and the largest attendance in all the classes shows the increased usefulness of the institution.

A short course of lectures to farmers was given as usual, in February, but after a three years trial without attracting any considerable number from outside the immediate neighborhood, it has seemed best to abandon the effort in the future. The general provision for agriculture in the course of study, and its

adaptation to wants of farmers' sons and daughters, make any special provision in the way of short courses of less importance in this State than where no agricultural college appeals directly to the young people.

No new buildings have been added during the year. Quite extensive repairs have been made, amounting to some four thousand dollars, in the way of new roofs and floors, and outside painting. A considerable addition has been made to equipment in the shops, and in the provision for heating and lighting. The buildings are now all heated by steam or hot water, chiefly from a central plant, and electrical light and power are available in many of them.

The work of the Experiment Station has brought larger results than in the previous year, because of a more favorable season. Report of its work has already been published, and is transmitted herewith.

RECEIPTS FOR AND DURING THE YEAR ENDED JUNE 30, 1896.

State Aid.—Appropriation for current expenses.....	\$ 3,922 22
Appropriation for buildings or other special purposes.....	15,504 37
Federal Aid.—Income from land grant, act of July 2, 1862.....	27,358 84
For experiment stations, act of March 2, 1887.....	15,000 00
Additional endowment, act of August 30, 1890.....	21,000 00
Fees, none; all other sources.....	10,297 53
Total receipts.....	\$93,082 96

EXPENDITURES.

Instruction in the subjects specified in sec. 1, act of August 30, 1890.....	\$71,795 17
Experiment Station.....	15,539 75
Instruction in all other subjects, if any, not mentioned in question one of this series.....	9,246 73
Total expenditures.....	\$96,581 65

PROPERTY AND EQUIPMENT.

Value of all buildings.....	\$210,000 00
of other equipment.....	181,583 45
Value of above property not used for instruction in the subjects specified in sec. 1 of act of August 30, 1890, buildings.....	15,000 00
of other equipment.....	8,500 00
Total number of acres.....	323
Acres under cultivation.....	250
Acres used for experiments.....	200
Value of farm lands.....	39,100 00
Amount of all endowment funds.....	502,491 60

LIBRARY.

Number of bound volumes, June 30, 1895.....	16,267
Pamphlets.....	4,000
Bound volumes added during year ended June 30, 1896.....	858
Pamphlets added during year ended June 30, 1896.....	1,300
Total bound volumes.....	17,125
Total pamphlets.....	5,300

FACULTY.

	Male.	Female.
Preparatory classes.....	2	2
Collegiate and special courses.....	25	6
Total, counting none twice.....	27	8
Number of staff of Experiment Station.....	14	

STUDENTS.

	Male.	Female.
Preparatory classes. No course. Special classes for brief periods, taught by graduate students.....	105	10
Collegiate and special classes.....	404	211
Post-graduate courses.....	15	17
Total, counting none twice.....	419	228
Number of students that pursued courses in agriculture.....	236	
mechanical engineering.....	100	
civil engineering.....	100	
architecture.....	1	
household economy.....	100	
veterinary science.....	50	
military tactics.....	310	

DEGREES CONFERRED.

Bachelor of Science, on men.....	43
on women.....	23
Master of Science, on men.....	3
on women.....	2

GEO. T. FAIRCHILD, President.

REPORT OF TREASURER

OF AMOUNT RECEIVED UNDER ACT OF CONGRESS OF AUGUST 30, 1890, AND OF DISBURSEMENT THEREOF.

Date on hand July 1, 1895.....	\$ 65
Balance of receipt of installment for 1895-6, July 26, 1895.....	
Amount.....	21,000 00
Total available for year ended June 30 1896.....	\$21,000 65
Disbursements thereof for and during the year ended June 30, 1896:—	
Agriculture, as per Schedule A.....	\$ 2,624 19
Mechanic Arts, as per Schedule B.....	3,200 00
English Language, as per Schedule C.....	2,766 68
Mathematical Science, as per Schedule D.....	3,200 00
Natural or Physical Science, as per Schedule E.....	7,609 62
Economic Science, as per Schedule F.....	1,600 00
Total expended during year.....	\$21,000 49
Balance remaining unexpended July 1, 1896.....	16

I hereby certify that the above account is correct and true, and, together with the schedules hereunto attached, truly represents the details of expenditures for the period and by the institution named, and that said expenditures were applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their application in the industries of life and to the facilities for such instruction.

C. B. DAUGHTERS, Treasurer.

SCHEDULE A.—Disbursements for instruction in Agriculture and for facilities for such instruction, during the year ended June 30, 1896.

For salaries of Professors of Agriculture and Horticulture and Farm Foreman, in part..... \$2,586 69

Two lawnmowers..... 37 50

Total..... \$2,624 19

SCHEDULE B.—Disbursements for instruction in Mechanic Arts and for facilities for such instruction, during the year ended June 30, 1896.

For salaries of Professor of Mechanics and two Foremen..... \$3,200 00

SCHEDULE C.—Disbursements for instruction in English Language and for facilities for such instruction, during the year ended June 30, 1896.

For salaries of Professor of English Language and Literature, and two Assistants..... \$2,766 68

SCHEDULE D.—Disbursements for instruction in Mathematical Science and for facilities for such instruction, during the year ended June 30, 1896.

For salaries of Professor of Mathematics and Professor of Mathematical Drawing..... \$3,200 00

SCHEDULE E.—Disbursements for instruction in Natural or Physical Science and for facilities for such instruction, during the year ended June 30, 1896.

For salaries of Professors of Chemistry and one Assistant, of Professor of Entomology and Zoology, of Professor of Physiology and Veterinary Science, of Professor of Botany, and of Professor of Physics, all in part..... \$7,273 32

Analytical balance.....	60 75
Herbarium paper.....	33 95
Chemical supplies.....	179 60
Microscope supplies.....	7 33
Museum glassware.....	29 12
Chemical apparatus.....	25 55
Total.....	\$7,609 62

SCHEDULE F.—Disbursements for instruction in Economic Science and for facilities for such instruction, during the year ended June 30, 1896.

For salary of Professor of Economic Science..... \$1,600 00

Experiment Station, Kansas State Agricultural College, in Account with the United States Appropriation, 1895-6.

RECEIPTS.

From the Treasurer of the United States as per appropriation for the fiscal year ending June 30, 1896, as per Act of Congress approved March 2, 1887..... \$15,000 00

EXPENDITURES.

Salaries, Abstract 1.....	\$10,069 97
Labor, Abstract 2.....	2,216 33
Publications, Abstract 3.....	1,428 83
Postage and stationery, Abstract 4.....	70 46
Freight and express, Abstract 5.....	126 16
Heat, light, and water, Abstract 6.....	24 66
Chemical supplies, Abstract 7.....	303 96
Seeds, plants, and sundry supplies, Abstract 8.....	198 53
Fertilizers, Abstract 9.....	112 24
Feeding stuffs, Abstract 10.....	163 89
Library, Abstract 11.....	6 25
Tools, implements, and machinery, Abstract 12.....	67 54
Furniture and fixtures, Abstract 13.....	44 00
Scientific apparatus, Abstract 14.....	121 20
Live stock, Abstract 15.....	15 75
Traveling expenses, Abstract 16.....	30 23
Contingent expenses, Abstract 17.....	
Building and repairs, Abstract 18.....	
Total.....	\$15,000 00

We, the undersigned, duly appointed Auditors of the Corporation, do hereby certify that we have examined the books and accounts of the Experiment Station, Kansas State Agricultural College for the fiscal year ending June 30, 1896; that we have found the same well kept and classified as above, and that the receipts for the year from the Treasurer of the United States are shown to have been \$15,000, and the corresponding disbursements \$15,000; for all of which proper vouchers are on file and have been by us examined and found correct, thus leaving no balance.

And we further certify that the expenditures have been solely for the purposes set forth in the Act of Congress approved March 2, 1887.

Seal. C. E. GOODYEAR, C. B. HOFFMAN, C. G. BUCKLEY, Auditors.

GEO. T. FAIRCHILD, Custodian.
ABSTRACT 1.—Salaries.
 Director and administrative officers, three..... \$ 880 00
 Scientific staff, six..... 4,028 02
 Assistants to scientific staff, six..... 4,012 40
 Special and temporary services..... 554 55

Total..... \$10,069 97
ABSTRACT 2.—Labor. All personal services not reported under Salaries, but not including labor on buildings, improvements, or repairs.
 Monthly employes, one, average rate \$30..... \$ 51 95
 Daily employes, thirty, average rate \$1.25..... 382 30
 Hourly employes, number variable, average rate ten to twelve and one-half cents..... 1,782 08

Total..... \$2,216 33
ABSTRACT 3.—Publications.
 For printing eight bulletins, 246 pages, total edition 64,000..... \$1,198 20
 For printing annual report, 28 pages, total edition 8000..... 112 65
 Other expenses..... 117 98

Total..... \$1,428 83
ABSTRACT 4.—Postage and Stationery..... \$70 46
ABSTRACT 5.—Freight and express..... \$126 16
ABSTRACT 6.—Heat, light, and water, furnished by the College.
ABSTRACT 7.—Chemical supplies.
 Chemicals..... \$24 66

ABSTRACT 8.—Seeds, plants, and sundry supplies.
 Agricultural..... \$ 85 22
 Horticultural..... 118 50
 Botanical..... 11 11
 Veterinary..... 2 05
 Chemical..... 4 15
 Miscellaneous, Irrigation..... 82 93

Total..... \$303 96
ABSTRACT 9.—Fertilizers.
ABSTRACT 10.—Feeding stuffs...... \$198 53
 In feeding experiments no charge is made for stock or feed except in case the proceeds of sales do not meet cost of feeding.

ABSTRACT 11.—Library..... \$112 24
ABSTRACT 12.—Tools, implements, and machinery.
 Repairs..... \$ 28 38
 New purchases..... 135 55

Total..... \$163 89
Principal purchases:—
 Cattle scales..... \$64 25
 Wagon..... 50 00

ABSTRACT 13.—Furniture and fixtures.
 Table..... \$4 50
 Desk cover..... 1 75

Total..... \$6 25
ABSTRACT 14.—Scientific apparatus.
 Centuries Nos. 32, 33, 34, North American Fungi..... \$18 00
 Florida Fungi..... 11 20
 Sundry apparatus..... 38 34

Total..... \$67 54
ABSTRACT 15.—Live stock.
 Swine..... \$40 00
 Sundries, guinea pigs..... 4 00

Total..... \$44 00
 Cattle used in feeding experiments are not charged to Station except in case of loss

ABSTRACT 16.—Traveling expenses.
 In supervision of station work..... \$100 90
 In attending farmers' institutes and other meetings..... 20 30

Total..... \$121 20
ABSTRACT 17.—Contingent expenses.
 Annual dues for membership in A. A. A. C. E. S..... \$10 00
 Material for silo stack..... 5 75

Total..... \$15 75
ABSTRACT 18.—Buildings and repairs.
 Improvements..... \$26 18
 Repairs..... 4 05

Total..... \$30 23

SUPPLEMENTARY STATEMENT.

RECEIPTS FROM OTHER SOURCES THAN THE UNITED STATES FOR THE YEAR ENDED JUNE 30, 1896.

Farm and Horticultural products..... \$539 75

EXPENDITURES.

Labor..... \$ 92 98

Building and repairs, irrigation..... 446 82

Total..... \$539 75

Station Bulletins.

No. 58. "Cornstalk Disease of Cattle," a preliminary bulletin, was issued the last of June. Its twenty-four pages describe various phases of disease among cattle in stalk-fields, reaching the following conclusions:—

"From experiments made here and elsewhere, it seems conclusively demonstrated that corn smut (*Ustilago maidis*) and the bacterial disease which sometimes attacks cornstalks, known as the Burrill bacterial corn disease, have no influence in the production of what is known as cornstalk disease in cattle.

"Observation seems to indicate that there may be more than one disease or condition which are liable to be confused under the term cornstalk disease.

"There are indications that what may be called typical cornstalk disease in cattle is a combination of indigestion and some toxic substance in the cornstalks, possibly salt petre (potassium nitrate)."

Prevention by starting the herd upon the stalk-field thoroughly fed, watered, and salted, and then gradually accustomed to the stalk-field is advised.

No. 59, just from the press, gives the past year's experience with wheat in comparison with that of previous years, summing up with the following:—

"1. The acre which has been in wheat for sixteen years past is beginning to show signs of exhaustion.

"2. Early plowing for wheat, which will allow the soil to settle before it is seeded, shows a decided advantage over plowing just before seeding.

"3. The plats which were subsoiled six weeks before seeding produced a better yield than the plats which were plowed in the ordinary way at the same time; but the plats which were subsoiled a year before seeding, and which had in the meantime been cropped with peas, gave no increase over the plowed.

"4. In an inquiry as to the best time to seed wheat, in which a series of plats was seeded every seventh day from September 13th to November 1st, the seeding of September 20th gave the best yield, 26.62 bushels per acre, and successive seedings showed a constantly diminishing yield, till the seeding of November 1st, which yielded but 8.99 bushels per acre of very inferior grain. Experience and experiments agree on about the middle of September as the best time to seed wheat in this region.

"5. Experiments with different amounts of seed per acre indicate that about 1½ bushels per acre give the best returns for this region.

"6. As to methods of seeding tried, the shoe press drill gave this year better yields than seeding with the hoe drill, lister drill, or broadcasting. But it must not be overlooked that whether this or that method will give the best yield will depend largely on the character of the season.

"7. There was no marked difference in yields of the grades, light, common, and heavy seed wheat, the present year, though the average of the experiments for four years is in favor of heavy seed.

"8. Pasturing the wheat did not affect the yield injuriously the present year. Former experiments have given the best yields when the wheat was not pastured.

"9. Wheat land manured with twenty tons of barn-yard manure per acre yearly has given decidedly smaller yields than land in wheat continuously without manure. The wheat on the manured land lodges, and fails to fill.

"10. The six best yielding varieties, based on an average of several years, are the following, in the order named: Andrew's No. 4, Turkey, Valley, Tasmania Red, Ramsey, and Currell."

Labor and Earnings.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour's daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their ability and means.

All labor at the College is under the direction of the superintendents of the department, and offers opportunities for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with the services rendered, from 8 to 10 cents an hour. The superintendents strive to adjust their work to the necessities of students and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses.

The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

Calendar.

1896-97.
Fall Term—September 10th to December 19th.
Winter Term—January 5th to March 27th.
Spring Term—March 30th to June 10th.
June 10th, Commencement.
1897-98.
Fall Term—September 9th to December 18th.

To School Officers.

The College Loan Commissioner has funds now to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioner and the State Agricultural College. Address C. R. Noe, Loan Commissioner, Leon, Kan.

GENERAL LOCAL NOTES.

Miss Rupp has been at her old home in Terre Haute, Ind.

The Armory glitters in a new coat of paint within and without.

Assistant Otis made a brief visit to his home in Topeka this month.

Prof. Will is studying financial questions while he manages his little farm near the bluff.

Prof. White varies the enjoyment of a summer at home by occasional visits to the Library.

Superintendent Thompson with his family is spending his vacation near Sioux City, Iowa.

Mr. Burtis has visited his Missouri farm for a few days since the pressing work on crops is finished.

All persons desiring to accommodate boarders or roomers will gain by notifying the Secretary as early as possible.

Prof. Georgeson, except for a week's stay at his farm in Missouri, has busied himself with farm crops and bulletins.

Miss Harper has kept the home this summer, but may take a brief outing at St. Paul, Minn., the first of September.

The State Examination for Teachers begins Monday, August 24th. Several graduates will take the examination here.

Prof. Walters has had a summer full of good—a daughter married, little visits to neighboring towns, and a trip to Chicago.

Miss Clark took a few days from duty in the President's Office last week for a visit to Junction City and neighboring towns.

Prof. Brown has had a small summer school of music in town, but has found time for visits to St. Louis and to Leavenworth.

Miss Pearce has been building up the Library by purchases and binding, but hopes for a week's trip to Minnesota next month.

Prof. Willard has taken short trips in the State, and is now directing the erection of a shelter for experiments in soil moisture.

The grounds have retained their greenness in spite of intense heat for two weeks prior to last week, and never looked more inviting than now.

Mrs. Winchip has endured the Kansas summer in good health, and is now directing the re-arrangement of the sewing rooms for next term's work.

Pres. Fairchild addressed the Ladies' Club of Lincoln, Kansas, upon "Rambles in Paris," on the evening of August 4th, while on a business trip.

Prof. Mayo made a brief visit to his old home in Michigan, after issuing bulletin No. 52, and has responded to various calls as State Veterinarian.

Prof. Lantz has enjoyed the summer in applied mathematics—applied to house painting and shingling—with marked effect upon color and physique.

The covering of main steam pipes, fifteen to twenty feet below the surface of the ground, has been economically accomplished by tunnelling short intervals.

Prof. Nichols has had frequent calls for x-rays in detecting lost needles, pieces of glass, and dislocations, and gave a lecture before the Riley County Institute.

Mr. Breese has held the weather in check as far as conditions allowed, with brief excursions to neighboring towns, but may take an outing in early September.

College Hall is receiving various touches in the way of slight repairs, a cement floor in the basement hall, and a thorough repainting of the kitchen laboratory being chief.

Prof. Hitchcock is on a bicycle tour of the southern counties of the State for collection of plants. The daily package received at College proves the diligence of his efforts.

Prof. Mason has been photographing the newly tried varieties of grapes for recreation, but is now making a trip with Mrs. Mason across country to Council Grove.

Prof. Olin has gained a delicious berry-brown, outing complexion by attending strictly to outdoor affairs at home, since the close of his work in the Normal Institute.

Capt. Cavanaugh made the tour of the lakes in July calling at Buffalo while President Fairchild and Mrs. Kedzie were there, and spends the rest of the summer in the East.

Pres. Fairchild took a vacation of three weeks in July, attending the National Educational Association at Buffalo, where he presided over the Depart-

ment of Industrial and Manual Training, and visiting friends in Ohio and Michigan. Mrs. Fairchild spent the time with her daughter in Kansas City.

Pres. and Mrs. Fairchild have rented the home of Mr. L. R. Elliott, furnished, and will begin house-keeping about the first of September.

Secretary Graham had a vacation with his brother in Superior, Nebraska, and during August has been trying the efficacy of Excelsior Springs, Mo. His family has also been away.

Prof. Failyer has suffered during most of the vacation from an attack of bronchitis, and is spending these last weeks of August in Estes Park, Colorado, with the hope of relief.

Prof. Hood has directed the improvements at College and devised machinery for a test of pumps for the State Board of Irrigation. He visits Kansas City this week in the same interest.

Prof. Popenoe has been occupied incidentally, with a crop of fine peaches, samples of which were tested by the Regents last week, but now has taken a tour of investigation over the Union Pacific to Oakley, where the insects are rampant.

Janitor McCreary has been laid aside for some weeks with a return of the facial neuralgia, and is undergoing treatment at Kirksville, Mo. He hopes to be able to take up his duties at opening of the term; but at present the care of buildings is laid upon Mr. E. Emrick, Fourth-year.

Mrs. Kedzie visited Columbus, Ohio, presented papers at the National Educational Association at Buffalo and at the great Chautauqua Assembly, and after a brief visit to friends in Michigan, Illinois, and Kansas, returned Saturday, to take up her work in Kansas again with increased faith in its opportunities and advantages.

The following note from Mrs. Mary T. Gray of Kansas City, Kansas, will have interest for every friend of the educational institutions of the State: "I have always purposed telling you that when I was one of the judges at the World's Fair, I heard the question asked of another judge in the educational department, 'Which do you consider ideal schools in all your examinations?' The answer came quick and emphatic, 'The Agricultural College of Kansas and the Normal School of Kansas seem to me ideal schools.' It was said before a full board of one hundred judges,—many foreign, learned men, and was so gratifying to me that I thought it might be to you."

More interested and interesting visitors than Mr. and Mrs. Hall of Australia, who spent Commencement week at the College, have never been here. The following note belongs to the many acquaintances of their brief stay:—

COATES HOUSE, KANSAS CITY, MO., JUNE 26, 1896.

PRESIDENT FAIRCHILD, MANHATTAN,

Dear Sir—Before leaving your neighborhood, I should like to express my thanks to you and to the members of your faculty and other officials of the K. S. A. C. for the very great kindness and courtesy shown to my wife and myself during our visit to your city. I learned a great deal from what I saw at the College, and I think your methods of teaching are admirable. Wishing the College increasing success, and again thanking you, I am

Yours sincerely,

EDGAR HALL.

GRADUATES AND FORMER STUDENTS.

F. J. Smith, '95, is getting off the INDUSTRIALIST this week.

Emma Glossop, '82, is to study next year in Cornell University.

E. H. Freeman, '95, will take a year at the State Normal School.

Alice E. Stewart-Points, '75, is at Matawna, N. J. with her brother.

I. D. Gardiner, '84, has taken the Quinby farm at Wakefield, Kansas.

J. W. Evans, '94, plans a course in the State Normal School next year.

F. R. Smith, '93, has opened a law office in the Eames block, Manhattan.

Clara F. Castle, '94, writes from Vera of a pleasant visit with relatives there.

H. N. Whitford, '90, will take a post-graduate course here the coming year.

G. W. Smith, '93, is employed as Principal of the Minneapolis schools next year.

C. A. Johnson, '95, visited the College on his way from Kansas City home last week.

Ione Dewey-Earle, '93, is employed as pianist at the Asylum for Insane at Topeka.

Mabel G. Selby, '95, and Jennie Selby, former student, are to teach in Oklahoma this fall.

T. L. Jones, '96, takes a place among the attendants at the Asylum for Insane at Topeka this week.

A. L. Eidson, Student in 1893-4, called recently to arrange for himself and a friend for the coming year.

Rev. O. L. Utter, '88, appeared in Manhattan last week on a short vacation from his charge at Axtell, Kansas.

F. W. Ames, '94, and Isabelle R. Frisbie, '94, surprised President Fairchild by greeting him in the street at Chicago last month. Miss Frisbie was on

her way to the Baptist Young Peoples' Union meeting at Milwaukee.

E. M. Hutto, Second-year in 1883-4 visited College last week with Mrs. Hutto and other friends from Westmoreland.

W. H. Moore, '94, gets a short vacation from his work in the Horticultural Department for a visit to friends in Iowa.

Margaretha E. C. Horn, '93, took her degree at Michigan University in June, and expects to teach the coming year.

Mrs. Kate Oldham-Sisson, '92, was a visitor at College recently, before returning to her home in Toronto, Canada.

F. A. Waugh, '91, Professor of Horticulture in Vermont University, issues an interesting bulletin on "The Pollination of Plums."

Marie B. Senn, '90, writes of gratifying success in the Chair of Domestic Economy in the North Dakota Agricultural College at Fargo.

Walter Harling, '94, and Mrs. Bessie Perry-Harling started on Wednesday last for Echo, Utah, where Mr. Harling is engaged to teach.

W. I. Joss, '95, writes from Fairview, where he will teach the same school he taught last winter with an increase of \$15 a month in salary.

G. K. Thompson, '93, writes that he has assumed the duties and responsibilities of editor of the Blue Rapids Motor, dating from July 8th.

C. S. Evans, '96, visited the College on his way from Ft. Riley to Ft. Snelling, Minn., where he is to be stationed as hospital steward.

J. E. Thackrey, '93, returned soon after his marriage in June to continue study and work in De Pauw University at Greencastle, Ind.

Edith E. Allman, Second-year in 1892, called at the College last week on her vacation from a position as stenographer in Kansas City, Kansas.

S. H. Creager, '95, called at College on his way from Ft. Riley, where he reported for the Kansas City Journal the special trial of artillery in July.

Jane C. Tunnell, '89, is Assistant to the Dean at Mount Carroll, Ill., in an Academy affiliated with the Chicago University. She began work last week.

J. J. Fryhofer, '96, after spending a few weeks visiting in Colorado, has taken the place of Supervisor in the Soldiers' Orphans' Home at Atchison, Kansas.

M. Kirkpatrick, '96, writes from Antlers, I. T., where he is connected with the U. S. Geological Survey, "having received one promotion and the promise of a second."

Ella M. Gale-Kedzie, '76, keeps a beautiful home for her father-in-law, Prof. Kedzie of the Michigan Agricultural College, and has her two children in the college there.

M. A. Carleton, '87, visited the College on the way to Washington from his experiments at Salina. He will conduct his wheat experiments on the College farm next year.

L. H. Dixon, '88, entertained the President and Mrs. Kedzie at his delightful home in Buffalo, N. Y., where he is foreman in one of the best architect's offices in the city.

E. C. Joss, '96, returns his diploma for a slight correction in the middle name. He has been in a store at Powhattan since graduating, but talks of a course in pharmacy this fall.

J. B. Thoburn, '93, with Mrs. Rachel Callie Conwell-Thoburn, '91, is visiting friends near Manhattan. He keeps a stiff upper lip in spite of uncertain crops on his farm at Syracuse.

W. E. Thackrey, '96, has engaged to teach near Eureka Lake, but will take civil service examination for the Indian Service in which he has had a previous experience of some years.

Abbie L. Marlatt, '88, was Secretary of the Department of Industrial and Manual Training at the Buffalo meeting of the National Educational Association, and made her friends proud of her abilities.

C. H. Thompson, '93, lately Assistant in the Missouri Botanical Garden at St. Louis, has accepted the place of Instructor in Botany at the State University, Columbia, Mo., and Botanical Assistant in the Experiment Station, salary \$900, with prospects for promotion.

Bertha S. Kimball, '90, left her work in Science Hall long enough to attend the Davis-Waugh wedding at McPherson and visit friends at Salina. Those who noticed her drawings in Bulletin No. 57 are wondering if her talent for presenting with scientific accuracy botanical growth ought not to find a broader field.

Ben Skinner, '91, who graduated last spring from the Kansas City Medical College, has decided to locate permanently in Fairview, his home, for the practice of medicine. The Fairview Enterprise concludes highly commendatory remarks by saying, "His host of friends in this vicinity greet him with pleasure, and cherish the hope that Dr. Skinner will secure a large and lucrative practice."

Ruth T. Stokes, '92, Assistant in Household Economy, resigns her place here, September 1st, to accept the position of Instructor in Sewing in the High School Department of the Manual Training School at Toledo, Ohio, with a salary of \$800. This brings our Kansas girls to the front in another State. The Department of Domestic Economy is now represent-

ed by teachers trained here in eight different States of the Union.

F. H. Avery, '87, died suddenly at Wakefield, Kan., July 9th, while attending the funeral of a neighbor who had died in a similar manner. Both men had attended the Republican Convention at Manhattan together on the week previous. Mrs. Hattie McConnell-Avery, student in 1888-9, with her four little children has gone to spend some time with her mother at Menoken. Mr. Avery left for his family a good mercantile business and a fair insurance on his life.

J. B. S. Norton, '96, Assistant for the past two years in the Botanical Department of our Experiment Station, leaves September 1st, to take the place recently vacated by C. H. Thompson, '93, of Assistant in the Missouri Botanical Garden at St. Louis, with a salary of \$750. It is no accident that our Department of Botany is compelled to give up its assistant for a third time to take more prominent work elsewhere, and that three other graduate students of Botany have been called to important positions.

AT HYMEN'S ALTAR.

Wedding bells have been ringing all through the vacation, so frequently that the latest sound may have obscured the earlier in our record. We note now these few, reserving the right to revise in later issues:—

G. L. Melton, '93, to Abbie Van Way, July 15th. Home, Winfield, Kansas.

F. J. Smith, '95, to Laura McKeen, '95, July 22nd. Manhattan.

Alfred Umbehr to Ida Walters, Third-year 1895-6, July 24th. Home, Alma, Kansas.

John Davis, '90, to Lily Mae Reed, August 15th. Home, Blackwell, O. T.

K. C. Davis, '91, to Fanny E. Waugh, '91, August 19th. Home, Austin, Minn.

Board Meeting.

All the Regents were present at the meeting of August 12th to 14th. Regent C. G. Buckley of Scandia having filed the oath of office was appointed in place of A. P. Riddle, resigned, upon the Committee of Finances.

Most of the time was occupied in the routine work of auditing accounts for the quarter ending June 30th last. The books and vouchers were compared, and the annual reports of President and Treasurer to the U. S. Departments were verified. Regents Fairchild, Daughters, and Hoffman were appointed to draft the biennial report to the Governor for consideration at the next meeting.

President Fairchild reported the sale of the old farm house for \$35, and progress made in repairs and improvements.

A request from Mr. M. A. Carleton of the Department of Agriculture for the use of ground, not to exceed one acre, for trial of rust-resisting wheats was granted.

A communication from Mr. C. H. Compton was referred to the Committee on Employees with permission to report at the next meeting. Authority was given the Committee on Employees to employ an assistant in the Department of Domestic Economy to take the place of Miss Ruth T. Stokes, resigned to take a place in the Toledo Manual Training School. President Fairchild was authorized to employ the usual assistance in the Executive Department.

In view of the fact that Mrs. Kedzie has for several years held a full professorship and done a professor's work, it was voted that from September 1st next she be paid the regular salary of \$1600 a year.

The following expenditures were authorized: Secretary's Office, desk and telephone improvements, \$45; Farm Department, shed, fences, and repairs, as estimated; Mechanical Department, lumber, \$500; Museum, lumber for stands, \$20; Horticultural Department, roses and photographic supplies, \$41; Department of Physics, Crookes tube, \$5. Repairs upon the drives were left to the discretion of Pres. Fairchild and Prof. Mason.

The charge for service of College bulls was fixed at \$5 for the Jersey and \$2.50 for other breeds.

Prof. Failyer was authorized to accept the limited compensation offered by the Department of Agriculture, so long as the service rendered does not interfere with College duties.

A considerable time was taken with informal consideration of needs to be laid before the legislature in the forthcoming biennial report.

The Board adjourned to meet on Monday, September 28th next at 3:30 P. M.

Weather Report for July, 1896.

BY C. M. BREESE, OBSERVER.

The close of the month finds corn prospects as good as a year ago. Early planted corn will make a good crop with no more rain, and a big one if the rains come. Haying has been in progress the past week, and the weather has been perfection for it. The crop is a big one. The third crop of alfalfa is almost ready for cutting. This crop has made a remarkable growth this season. Early grapes and peaches are coming into the market. They will be plentiful. Early potatoes came on the market at the beginning of the month. The crop is excellent.

Temperature.—The mean temperature was 76.94°, which is 1.4° below normal. There have been 26 warmer and 11 cooler Julys in our record. The highest temperature was 101°, on the 3rd; the lowest, 57°, on the 5th—a monthly range of 44°. The greatest daily range was 35°, on the 5th; the least 8°, on the 18th. The mean daily range was 23.32°. The warm-

est day was the 29th, the mean temperature being 85.75°. The coldest day was the 8th, the temperature being 61°. The mean temperature at 7 A. M. was 71°; at 2 P. M., 87.45°; at 9 P. M., 74.64°. The mean of the maximum thermometer was 90.32°; of the minimum, 66.87°; the mean of these two being 78.60°.

Barometer.—The mean pressure for the month was 28.833 inches, which is .033 inch above normal. The maximum was 28.984 inches at 7 A. M. on the 7th; the minimum, 28.588 inches, at 2 P. M. on the 26th; monthly range, .396 inch. The mean at 7 A. M. was 28.858 inches; at 2 P. M., 28.822 inches; at 9 P. M., 28.819 inches.

Cloudiness.—The per cent of cloudiness was 39.78. This is 4.78 per cent above the normal. The per cent at 7 A. M. was 50; at 2 P. M., 45.16; at 9 P. M., 24.19. One day was entirely cloudy; two were five-sixths cloudy; six were two-thirds cloudy; six were one-half cloudy; six were one-third cloudy; four were one-sixth cloudy; and six were clear.

Precipitation.—The total rainfall was 5.39 inches. This is .66 inch above the normal. The table following shows monthly rainfall for 1896, the normal, and departure from normal:—

	Normal.	1896.	Departure from Normal.
January	.77	.31	-.46
February	1.06	.56	-.50
March	1.30	.87	-.43
April	2.72	5.49	2.77
May	4.13	7.41	3.28
June	4.43	2.63	-1.80
July	4.73	5.39	.66
Totals	19.14	22.66	3.52

Wind.—The wind was from the south twenty-five times; southeast, twenty-two times; southwest, sixteen times; northeast, twelve times; east, eleven times; north, six times; northwest, one time. The total run of wind was 6464 miles. This gives a mean daily velocity of 208.52 miles, and a mean hourly velocity of 8.69 miles. The highest daily velocity was 472 miles, on the 26th; the lowest, 68 miles, on the 19th. The highest hourly velocity was 29 miles between 1 and 2 P. M. on the 26th.

The following tables give comparisons with preceding Julys:—

July.	Number of Rains.	Rain in inches.	Per cent of Cloudiness.	Prevailing Wind.	Mean Temperature.	Maximum Temperature.	Minimum Temperature.	Mean Barometer.	Maximum Barometer.	Minimum Barometer.
1858...	12	6.50	39	S	80.85	100	66	28.83	29.05	28.50
1859...	6	4.99	39	S	80.49	104	62	28.83	29.06	28.52
1860...	5	2.09	30	SW	86.87	115	65	28.83	29.04	28.55
1861...	8	6.08	38	S	78.10	94	64	28.83	29.04	28.55
1862...	9	3.83	46	S	79.43	103	65	28.83	29.04	28.55
1863...	15	4.54	54	SE	75.60	92	58	28.83	29.04	28.55
1864...	10	3.02	56	SW	81.97	101	61	28.83	29.04	28.55
1865...	11	6.42	51	SW	75.55	93	50	28.83	29.04	28.55
1866...	5	3.27	28	SW	80.73	96	64	28.83	29.04	28.55
1867...	9	5.42	47	S	74.73	95	59	28.83	29.04	28.55
1868...	9	4.70	33	S&SW	82.93	98	67	28.83	29.04	28.55
1869...	7	6.27	43	SW	72.81	93	58	28.83	29.04	28.55
1870...	4	2.98	21	SW	84.42	102	65	28.83	29.04	28.55
1871...	11	5.03	46	SE	77.35	96	62	28.83	29.04	28.55
1872...	15	8.92	55	SW	77.98	98	62	28.83	29.04	28.55
1873...	2	1.18	30	S	82.39	110	57	28.83	29.04	28.55
1874...	14	3.33	47	S	75.23	93	57	28.83	29.04	28.55
1875...	6	5.73	41	SW	77.05	95	51	28.83	29.04	28.55
1876...	6	4.16	38	SW	77.43	100	47	28.83	29.04	28.55
1877...	9	12.71	30	SW	78.59	95	51	28.83	29.04	28.55
1878...	7	4.91	37	SE	79.97	98	67	28.83	29.04	28.55
1879...	8	3.78	36	S&SW	76.01	92	55	28.83	29.04	28.55
1880...	3	1.32	34	SW	81.13	103	64	28.83	29.04	28.55
1881...	9	7.73	40	NWSW	72.68	98	49	28.83	29.04	28.55
1882...	8	4.15	38	S&SW	77.14	98	57	28.83	29.04	28.55
1883...	8	5.64	19	E	76.87	98	54	28.83	29.04	28.55
1884...	9	4.99	41	SW	77.54	99	54	28.83	29.04	28.55
1885...	4	2.84	21	E	78.82	106	55	28.83	29.04	28.55
1886...	4	9.0	15	S	80.74	110	40	28.83	29.04	28.55
1887...	5	4.4	14	S	80.08	107	58	28.83	29.04	28.55
1888...	8	8.1	45	...	75.15	98	50	28.83	29.04	28.55
1889...	8	2.89	25	...	81.92	107	54	28.83	29.04	28.55
1890...	14	5.51	45	...	72.04	93	50	28.83	29.04	28.55
1891...	5	3.88	17	SW	77.32	106	50	28.83	29.04	28.55
1892...	9	4.29	13	S	78.60	101	54	28.83	29.04	28.55
1893...	3	2.27	24	S	77.64	109	52	28.83	29.04	28.55
1894...	8	6.51	39	S	75.96	105	48	28.83	29.04	28.55
1895...	7	5.39	40	S	76.94	101	57	28.83	29.04	28.55
Sums	300	179.72	1265	...	2977	...	691.14	...	...	...
Means	8	4.73	35	S&SW	78.34	...	28.80	...	...	...

WIND RECORD.

July.	Total Miles.	Mean Daily.	Maximum Daily.	Minimum Daily.	Mean Hourly.	Maximum Hourly.
1889...	6139	198.03	435	43	8.25	26
1890...	8341	258.43	441	96	10.76	26
1891...	5551	179.20	441	32	7.46	29
1892...	6632	213.93	411	46	8.91	27
1893...	7521	242.62	435	103	10.11	36
1894...	6150	198.40	490	64	8.27	28
1895...	6172	199.10	388	71	8.29	26
1896...	6464	208.52	472	68	8.69	29
Sums	52970	1698.23	...	...	70.75	...
Means	6621	2123	...	...	8.84	...

Weather Summary for June, 1896.

BY C. M. BREESE, OBSERVER.

The mean temperature was 73.19°, which is about normal. The highest temperature was 98°, on the 19th; the lowest, 46°, on the 12th. The rainfall was 2.63 inches, which is 1.8 inches below normal. This deficiency was scarcely noticed, however, as the ground was thoroughly soaked from the abundant rainfall of April and May. Wheat harvest lasted from the 10th to the 20th. The crop was good. About the 25th, corn began to be laid by. The crop at the end of the month is in excellent condition. Oats crop was almost a complete failure. The crop was very promising until near the time it began to ripen when it was badly attacked by rust.

A Good Education Pays.

1. In dollars and cents. All testimony of statistics agrees in showing that educated laborers of all ranks have better work and better wages than the uneducated.
2. In influence and position. Careful estimates make it certain that the chances of promotion to places of trust and power among men are almost two hundred times as great to an educated man as to the uneducated man.
3. In usefulness. The bulk of good work in the world—discovery, invention, government, philanthropy, and religion—is brought about by those who learn to think by study.
4. In enjoyment. Our pleasures grow out of what we are ourselves more than from surroundings. A well-trained man sees, hears, and handles a great deal more of the world than an untrained one. All things do him more good, not so much because he owns them as because he understands them. He always has good things to think about.

Industrial Training.

Closely adjusted to the course of study is industrial training in several of the arts, to which each student is required to devote at least one hour a day. Among the lines of training each student may select, with the approval of the Faculty, except in terms when special industrials are required. Young men may have farming, gardening, and fruit-growing, woodwork and ironwork, or printing. Young women may take cooking, sewing, printing, floriculture, or music.

All young men must have their industrials for one term in the carpenter shop before completing the first year; and during the spring term of the second and the fall term of the third year, upon the farm, garden, and orchards. Young women take their industrial for one term of the first year in sewing, and for the winter and spring terms of the second year in the kitchen laboratory and dairy.

College Business.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when added, are paid at the office of the Treasurer in Manhattan. All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Popenoe, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study and work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work—studies, examinations, grades, boarding-places, etc.—may be obtained at the office of the President, or by addressing the Secretary.

The Experiment Station should be addressed through the Secretary.

MANHATTAN ADVERTISEMENTS.

BOOKS AND STATIONERY.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc.

VARNEY'S BOOK-STORE.—Popular Head-quarters for College Text-Books and Supplies. Second-Hand Books often as good as new. Call when down town. Always glad to see you.

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DRY GOODS.

E. A. WHARTON'S is the most popular Dry Goods Store in Manhattan. The greatest stock, the very latest styles, the most popular prices. Always pleased to show goods.

CLOTHING.

ELLIOT & GARRETSON, Clothiers and Furnishers, invite students and all other College people to call and examine their large stock of new goods. All the desirable things in men's wear. Latest styles in every department.

KNOTSMAN CLOTHING COMPANY offers a great variety of clothing and furnishing goods at prices to suit the times. Call without fail before buying.

WATCHES, JEWELRY.

R. E. LOFINCK keeps a big stock of Watches, Clocks, Jewelry and Gold Spectacles, also Musical Instruments.

DRUGS.

W. C. JOHNSTON, Druggist. A large line of Toilet Articles and Fancy Goods. The patronage of students is solicited.

PHOTOGRAPHS.

DEWEY & DEWEY, the Manhattan photographers, solicit the student trade. Special rates to clubs and large groups. Call and see samples. Oldest gallery, established 1859.

GENERAL MERCHANDISE.

THE SPOT CASH STORE is Headquarters for Dry Goods, Notions, Boots and Shoes, Hats and Caps, Clothing, and Ladies' Wraps. Lowest prices in the city. A complete grocery store in connection.

DENTIST.

D. R. C. P. BLACHLY, Dentist. Gold filling a specialty.

MEAT MARKET.

SCHULTZ BROS. offer Fresh and Salt Meats in great variety. Students are invited to call at their market on Poyutz Avenue, one door east of Fox's bookstore, or give orders to delivery wagon.

SHAVING PARLOR.

6 BATHS, \$1.00 cash. 12 shaves, \$1.00 cash. Hair cutting a specialty. All work first-class at Pete Hostrop's Barber Shop. Next door to Postoffice.

THE INDUSTRIALIST.

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HISTORIC NOTES ON DRAWING IN THE PUBLIC SCHOOLS. II.

BY PROF. J. D. WALTERS.

IN America, drawing did not become a recognized branch of popular education until the Nation had begun to plan the Centennial Exposition. Previous to that time, there had been only isolated and experimental efforts.

After having founded in Philadelphia the public library, in 1732, Benjamin Franklin busied himself with plans for the education of youth, and in 1749 published his "Proposed Hints for an Academy," in which he suggested that "all should be taught to write a fair hand, and something of drawing by imitation of prints, and some of the first principles of perspective, arithmetic, accounts, and astronomy." It will be seen here that drawing is classed among the most useful studies.

Among the very first pioneers of school drawing must be mentioned William B. Fowle, a teacher in the public schools of Boston from 1821 to 1823. He had no well-defined aims and methods, but advocated that the study should be based on geometry, and should be made a chief means of teaching geography and science. In 1827, he published an elementary work on drawing, translated, in part, from the French, which must have met with some degree of success, as a third edition with additions was published in 1830. To the second edition the translator had added a second part of his own, containing the "Elements of Perspective Drawing," also directions for instrumental drawing. Through him, the wall blackboard became a feature of the American schools. Previous to 1790, the girls were not allowed to attend public schools, and from 1790 to 1821 they could only attend school in summer. It is characteristic of Mr. Fowle that he was a strong advocate of co-education, as well as of form study.

Another pioneer was the Hon. Henry Barnard, the editor of the *American Journal of Education*, who, upon the establishment of the United States Bureau of Education in 1838, delivered in many parts of the country an address on the subject of industrial education in which he urged that drawing should be taught in the common schools.

The most notable early effort to popularize art through the instrumentality of the school house is, perhaps, that of Rembrandt Peale, who, from 1840 to 1844, was connected with the high school of Philadelphia as a special teacher of art. His object in accepting this position was to have the opportunity of demonstrating the feasibility of teaching drawing to classes of common school children, and he met the fate of most reformers—his plan received but little favor, his proposition was violently assailed, his method criticised, and his whole scheme was denounced as that of a charlatan. The elements of Mr. Peale's system, as laid down in his handbook, "Graphics," were mainly these:—

1. The eye should be trained from childhood to recognize the elements of form. Training the eye to see, and of the hand to imitate should be simultaneous.
2. The training should begin with the simplest elements of form, taking but one at a time. Parallelism was the first thing to be taught, then the division of lines, next the division of angles, until, step by step, the most complex forms could be mastered.
3. Drawing, as a school study, should precede penmanship.
4. The pupil should first copy patterns, and afterward copy from nature.
5. He should first study freehand drawing, afterward mechanical drawing.

As in the case of Mr. Fowle, many of whose reforms survived to great advantage in the schools of Boston, although for a time all his work seemed to be overthrown, the effort of this artist was thwarted by an ignorant and obstinate school board, and due credit given several decades afterward. In a report on Peale's endeavor written by Principal John S. Hart of Philadelphia for the American Bureau of Education, 1875, appears the following sentence: "Thirty years ago, I expressed the belief, and I am willing still to abide by the record, that such a system as Mr. Peale's, fully and fairly carried out, would have been worth more to the city pecuniarily than the entire cost of her system of public schools."

From this time on, the efforts to introduce drawing into graded city schools became more frequent and persistent. At Baltimore, in 1849, Professor William Winifre, and at Cleveland, in the same year, Pro-

fessor Jehu Brainerd, labored as teachers and authors of textbooks with varying success for the new study. In the Boston city schools, drawing became a required, though much abused and molested study, in 1864. Just before this Mr. William N. Bartolomeu's new textbooks were published, and were now introduced into the different classes. A few years later, Portland, New Haven, Cleveland, and New York made similar attempts. Cincinnati introduced drawing as a regular branch of instruction in 1869, using the Forbriger textbooks revised by Prof. Fick. In the light of subsequent events, it is easy to see how these sporadic efforts tended to educate and awaken more general interest in the subject, though it was not the teacher, but the merchant and manufacturer, who finally decided that drawing was to have a permanent home in the public school. Owing to the rapid progress of the industrial countries of Europe, the necessity of some action on the part of the manufacturers of the United States, unless they were willing to submit to inglorious inferiority in all but the lowest grades of production, was becoming more and more pressing. The general study of industrial drawing by all the children was now urged from a desire to insure to the country trained art workers who should be able to compete with the most skilled artisans of the world, and the State that first carried the plan into effect was Massachusetts.

Drawing became an authorized branch of instruction in the public schools of Massachusetts in 1859, and a required branch in 1870. The latter act of the legislature also legalized day or evening drawing classes for pupils of over fifteen years of age, in cities of over 10,000 inhabitants. These laws were cordially received in nearly all sections of the State. The next step was the founding of a normal art school, and the calling of Prof. Walter Smith, art master in charge of the schools of Leeds, England, and a pupil of the Art School of South Kensington, to take charge of the introduction of the study. To Smith, more than to any other one man, the country is indebted for the rapid and systematic progress which the new study has made since that time. "His rare ability, sturdy courage, and square-shouldered contempt for water-colored humbug and wax-work bosh placed the future workmen of the country under lasting obligations to Bostonian sagacity." (John A. Anderson, 1874.)

The next article will speak of the maxims and work of Prof. Walter Smith, Art Director of Massachusetts.

Some of the Benefits of One Year at College.

There are many young men who ardently wish they could get an education, but who have not the means with which to take a full college course. There are others whose circumstances are such that they do not think it worth while to give the subject even a passing thought, lest it raise ambitions impossible to be satisfied. To all such, this question ought to come with interest: "Is it worth while for me to spend only a year at college, if I am sure that I cannot spend more than that?" A careful consideration of this question will undoubtedly result in an affirmative answer. Let us consider some of the benefits of a year's attendance at a college of liberal culture, a college with full courses, able instructors, good equipment, and an enthusiastic body of students, and see if there are not incalculable blessings awaiting him who can spend even but one year at such an institution.

First of all must be named the good derived from the studies during the year. Let the student who knows that he can take only one year's work, frankly state the fact to the faculty, and they will help him arrange his work so that the year may yield the best possible results. One object in going to college is to secure information, and an industrious young person ought to take in and assimilate a good deal of truth in a year. A college year contains about 240 working days. This much time sacredly devoted to honest work cannot fail to enrich the mind with priceless treasures. One does not say, "Because I cannot become a millionaire, I will not enter business." Why should he say a similar thing with reference to acquiring mental wealth?

One of the most valuable lessons of a college course is to learn the full meaning of an education. We all know that by its etymology the word means "to lead out" or develop the latent faculties of the mind; but how hard it is to get away from the notion that a college course is a mere stuffing process, and

that a college graduate ought to know everything.

College graduates are slowly proving to the world that this latter idea is a mistake; and consequently a good many people ask, "Well, what then is the use of going to college?" Let a young man go one year, and he will begin to realize why it is necessary to go to college. He will see how broad the field of truth is, and how inadequate are his undeveloped powers to cope with the puzzling problems of the universe; he will learn that the college course only introduces him to the various departments, and if he would be a specialist in anything he must put years of special work upon it; and he will also learn that all truth is related, and that even a specialist must have a broader view than can be had from a single window. And as the grandeur of these facts begin to impress him, he will reach out for a better understanding of truth, and his soul will kindle with an intense desire for knowledge.

But will not such a desire be a curse to our young friend who is unable to finish his college course? Not at all. No one in this day of books and college or university extension courses has a right to despair of becoming educated. And for this reason the third thing to be learned in one year of college work is valuable, namely, how to study. If he learns this lesson well in one year, our young friend will have done well. He will learn to study systematically and thoroughly. The world's work could be done in half the time now put upon it, if all would work systematically. The reason why Dr. Gunsaulus can be pastor of a large Chicago church, be President of the Armour Institute, write for the press, and deliver many lectures, is not solely because of his brilliant mind, but because he has a time for everything, and does it on time. Some students spend more time over four studies than the President of the United States requires to administer the affairs of this nation. The reason is because they work in a desultory way, and do not concentrate their powers on the business at hand.

But now our young friend, having some idea how to study, will also learn how to equip his private library for his future improvement. The books in many a home are purchased only at Christmas or when some unusually persistent book agent comes around, and then they are bought more for the pictures they contain or the binding, than for the thoughts on the printed page. This is not greatly to be wondered at, for the selection of a private library is not an easy matter. But our young friend, taking the college library and the private libraries of his teachers and the older of his fellow students as models, will be able to form a good idea of what constitutes a working private library, and thus he may continue his work in the spare hours of his later life.

A fifth benefit will be the literary society work. No factor of college life makes itself felt more quickly than this. Almost as soon as a new student gets off the train he will be captured by two or three lively fellows, who treat him most royally and tell him of the good points of their society, and in a confidential way warn him of the other one. In due time, he joins one, and the year's experience in the society hall will give him confidence in his own powers, easy bearing in public address, familiarity with the method of conducting deliberative assemblies, and other helpful things that in themselves will be worth the time and money spent for the entire year.

At the college one often forms associations that are a source of lifelong pleasure and inspiration. Who can measure the influence of a faithful teacher in shaping one's life, and who can tell the value of the fellowship of a college chum? Some one has written of a friend: "Thy friendship was more precious to me than gold, and the joys of thy companionship better than the possession of rich jewels;" and what student has not verified these words in the friendships of college life? To be sure, one may have friends anywhere, but are we not sure to find the most helpful friends where hundreds are gathered for the same great purpose that inspires ourselves?

Then, in a year at college one will not fail to catch that indefinable but powerful something called college spirit, the spirit of love for the truth and ardent enthusiasm in the search for it, the spirit of ambition to make the most of our opportunities, the spirit of the equality of all, rich and poor; for there is usually no aristocracy in college life except the aristocracy of intellect. He who takes hold of the problems of life with that spirit will wrestle with them until he masters them.

Finally, when our young friend has spent one year at college, and caught its spirit, seen its advantages, and found it was not such a terribly hard thing to do after all, he will very likely set himself to greater effort, and come back the next year, and so on, until he has finished a complete course. For, you know, one can never accomplish anything unless he makes a beginning.—*R. L. Netherton, in Kansas Farmer.*

The Education for the Farmer's Boy.

College education for the farmer's boy is liable to inoculate him with the idea that he is too smart to perform manual labor. The praiseworthy desire of the farmer is to have his son receive a good education. To get that without sniffing a college atmosphere that will make him look down upon all that made his father prosperous is one of the dangers of college life for the boy. The boy on the farm needs education at least as much as do those who pursue what is called the "learned professions;" but to get it without his hat becoming two or three sizes too small for him is one of the difficulties. The boy too often takes "short courses," and is made to believe by the bragging of the professors that there are few boys like him, and this announcement goes home under a stamp provided by the government, in response to which a draft very often comes back pro-

viding for the "finishing" of the boy's education. The school to which the farmer can safely send his son is where the boy can be taught agriculture, pure and undefiled, in all its branches, and where teachers are employed who have good, practical agricultural sense instead of an abundant supply of theoretical nonsense. The one great trouble is that too many teachers are not practical men, and the kind of education they give often educates the boy off rather than on the farm. I have known boys to go to college and get a swelled head so badly that the old man caught it when they returned home. When it gets this bad, the case is so aggravated as to be difficult to cure.—*Live-Stock Indicator.*

The Farmer and the Farm Paper.

The work that is accomplished by farm papers in uplifting the agriculture of the country can never be told. The silver veins in Idaho and the gold in the mines and streams of California are not sufficient to represent its value. Silently their teaching falls into the soil, and we behold the harvest in the better returns that are reaped in the field and gathered in the stalls. And so mighty is the influence of this teaching that it is gradually uplifting defective practice. It is enabling the farmer to place the foundations of his methods on the bed-rock of correct principles. It is shedding a new light and a new interest around his work which too frequently in the past was looked upon as cheerless drudgery. It is transferring the burden of back-breaking labor to the horse and the machine or implement which he draws. And it is bringing to him greater gains than he could possibly have secured without the influence of such teaching.

The benefits are great; the price is small. Fellow farmers, we complain of depression and low prices for our produce. We murmur if we get no profit on our products. But do we ever stop to reflect that the publisher of the agricultural paper seldom gets any profit from the subscription revenues of his paper? It usually costs him more than the subscription price. His profits come from the advertising pages. Let us think of these things as we enjoy the luxury of the farm paper that comes to us from week to week, and as we think of them, let us try to do something to help the men who are giving us goods below cost.

Take one issue, and what do we find? We see there information on its every page that would have rejoiced the hearts of the readers of a hundred years ago. We are almost sure to find in it something bearing on our life work that is worth more than the subscription price of the paper for a year. It keeps us informed as to agricultural discovery, that in our work we can keep abreast of the times. It summarizes knowledge in many instances, and thereby saves an immense amount of labor on our part to get to the conclusions reached. And in a single article it frequently gives us the cream of the results of the labors of a lifetime spent in some special work. Are we not under some obligations to the agricultural press? Have we no duty to perform by way of helping on the good work, other than that of remitting the subscription price at stated times?

And the help brought by the agricultural press is not confined to those who live solely upon revenues obtained from the farm. Farm papers have probably helped none so much as the teachers of agriculture. The agricultural teaching of today is not based upon the knowledge obtained from standard works. These, as a rule, are yet to be written. It is rather based, first, upon the experience gleaned on the old farm at home; second, upon the experience of men eminently successful in their respective lines of work; and third, upon information gleaned from the agricultural press, and the last mentioned is the most prolific source of such information—at least it has proved so to the writer. Go on, then, publishers of farm papers, weary not in the good work; you are building better than you know.

Perhaps nine out of every ten farmers in the land do not take an agricultural paper at all. They do not take it, because they do not know its value. Think of the great disadvantages under which they labor. Is there no duty that we owe to these our brethren? Have we ever tried to persuade them to take an agricultural paper?

The old year is dead and gone and a new year has arisen from its ashes, and as we step across its portals, we are doubtless resolving to be more helpful to our fellows than we have ever been, and in carrying out these good resolves, let us remember our duty to our fellow-farmers who take no agricultural paper. Tell your neighbor the worth of such a paper, and persuade him to take it. You do him a greater kindness than if you gave him gold. This article has been penned in the hope that many farmers will thus be aided by those who can render such assistance. Farmers, will you not give such aid? One new name added by every subscriber—see what it would mean to the publishers, and think of what it would mean to farmers and farming.—*Thos. Shaw, in Cultivator and Country Gentleman.*

Kaffir Corn Coming.

In view of the fact that this College has been growing and praising Kaffir corn every year since 1888, the following from the *Kansas Farmer* is of special interest:—

"A most notable increase in the per cent of acreage of any one crop in Kansas the present year, as shown by the assessors' returns to the State Board of Agriculture, applies to Kaffir corn, and amounts to 102½ per cent, or a net gain of 188,860 acres. Greenwood County is foremost in appreciation of this great forage crop and grain plant, and has 30,125 acres

against 12,892 acres last year; Butler County follows next with 21,436 acres, an increase of 343 per cent. Cloud County's gain is nearly 470 per cent.

"It is of interest to note that the large increase is in eastern and central counties where other grain and forage crops are produced in greatest abundance, and by no means confined to territory where such crops as corn are grown on but a small scale, and where the sorghums have been supposed to be cultivated only as substitutes.

"The increased acreage of saccharine sorghums for forage and grain this year is also large, amounting to 77,391 acres, or more than 27 per cent, quite evenly distributed over the State. On the other hand, sorghum planted for syrup or sugar, shows a decreased acreage amounting to more than one-third.

"A decline in the acreage of milo maize amounting to more than 10 per cent, and of Jerusalem nearly 48 per cent, suggests that farmers and stockmen are finding that of the non-sweet sorghums, Kaffir corn is best adapted to their conditions and uses."

Self-Educated Farmers.

Many of our readers of middle age and under have not had the advantage of anything more than a common school education. It is a matter of life-long regret with them that they have not. It is a matter of regret to us that many of them conclude that because they had not the advantage of a college education or an agricultural education in their teens, or before they are twenty-five, they cannot secure an agricultural education now. In this they are mistaken. While we do not underestimate the value of from two to four years' training at a college of some kind, and while we urge our young friends to secure it, if they possibly can, in order to gain the greatest proficiency, not as professional men, but as farmers, we confess and maintain that the value of a college education, especially in classical lines, is very greatly overestimated. We call the attention of our readers to the fact that many of our best writers on agricultural lines today are not college bred men at all. They have not even had the opportunity to attend an agricultural college. They are emphatically self-educated men, and their education was acquired on the farm by means which are within the reach of every farmer who reads this paper, and more abundantly within their reach than at the time these men, who are regarded as authorities in agriculture, educated themselves. It is the same way in other lines of journalism. Some of the best writers we know of were never inside of a college while we know of plenty of college bred men who cannot write an article for a paper that has not to be edited after it comes to the office.

How are they to go about this work? First, they should confine themselves mainly to education on agricultural lines, and the subjects relating thereto. They should subscribe for agricultural papers that are conducted by thinking, practical men, and that are not edited either by paste pot or scissors, nor yet full of cram. By "cram" we mean that knowledge which comes to men who know nothing about farming, second-handed men who have plenty of second-handed agricultural wisdom, but don't have the wit to use it.

The farmer who is educating himself should every year buy a first-class agricultural book, not a compilation as many books are, but the work of some real thinker and doer who knows what he is writing about; and writes because he can't help it, because he likes to do it, rather than for the money there is in it. Books written by a penny-a-liner, at so much a page, are usually filled with cram and all poor stuff. He should not merely read this book, but thoroughly master it as his bright boy does the textbook at school. The book that is not worth studying and reading more than once is not worth reading at all.

Every farmer should have an encyclopedia to which he can refer for any information he may desire. He should besides have the complete set of bulletins of the agricultural experiment station of his own State, and as far as possible of the adjoining States. If he keeps files of his papers, he will thus build up a library, and in so doing will gradually acquire an education. No man, however, is properly educated unless he knows how to write out what he has thoroughly mastered. If he has mastered it, he can write about it and talk about it. Writing leads to clear thinking; so does talking, if one does not talk too much, and aids in fluency of expression. Don't, by all means, get the idea that you can't educate yourselves.—*Wallace's Farmer.*

Library.

The College library consists of over 13,000 bound volumes and about 4,000 pamphlets, and is valued at \$26,000. It has been selected mainly with a view to supplementing the class room instruction in the various departments. All the books are indexed in a card catalogue, so that the resources of the library upon any subject may be readily learned. All students have free access to the bookshelves, and may draw the books for home use, under simple and most liberal regulations.

The College subscribes for the leading literary, scientific, and agricultural journals; while the principal daily and weekly papers of Kansas and many from other States are received in exchange for the College publications. All these are kept on file for the use of students and Faculty.

The College has been designated as the depository of United States public documents for the Fifth Congressional District of Kansas. About 1,000 volumes have already been received on this account.

The library is open daily except on legal holidays. During the College terms, the library hours are from 8 A. M. to 4 P. M., and during vacation from 9 A. M. to 12 M. The Librarian or the assistant is in constant attendance, at these hours, to assist those who use the books.

Calendar.

1896-97.
Fall Term—September 10th to December 19th.
Winter Term—January 5th to March 27th.
Spring Term—March 30th to June 10th.
June 10th, Commencement.
1897-98.
Fall Term—September 9th to December 18th.

To School Officers.

The College Loan Commissioner has funds now to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioner and the State Agricultural College. Address C. R. Noe, Loan Commissioner, Leon, Kan.

GENERAL LOCAL NOTES.

Prof. Georgeson made a brief visit to Topeka last week.

President Fairchild spent the afternoon of Friday in Topeka on College business.

Mr. Baxter has a visit from his son Frank, who is telegraph operator at Kendall, Kansas.

Prof. Mayo has an article in the last *Kansas Farmer* upon "Contagious Sore Eyes of Cattle."

Another of our Domestic Science teachers is sought for in a neighboring State Agricultural College.

Professor and Mrs. Mason returned on Tuesday last from a pleasant visit in Morris and Wabaunsee Counties.

The *Kansas Farmer* reprints Bulletin No. 58, Prof. Mayo's investigation of the cornstalk disease, in a series of articles.

Numerous future students have appeared during the past week, house hunting and arranging for ready admission to College.

Applicants for information about the opening of the College year are numerous enough to suggest an increased attendance.

Prof. Olin gives the opening address before the Dickinson County High School at Chapman, this evening, August 31st.

Prof. Hitchcock returned the first of last week, delighted with his six weeks collecting tour in the southern part of the State.

A second hand ensilage cutter, the Ross No. 13 A, with 22 foot elevator, is for sale cheap at the College barn. It is in running order.

Repairs upon the College drives were begun last week by construction of substantial culverts where the old wooden ones had rotted out.

Secretary Graham returned Monday last from the health-giving Excelsior Springs, Mo., much recruited and greatly benefited by his vacation.

The State examination at the College was attended by H. N. Whitford, '90; W. E. Smith, '93; V. I. Sandt, '94; Ada Rice, '95, and E. G. Gibson, '96.

Superintendent Thompson returned in time to catch the proof-reading on the *INDUSTRIALIST* the last of the week. His summer's outing has done him good.

Bids for the contract for hauling coal for the College during the season of 1896-7 will be received until Saturday noon, September 5th. Address the President.

Prof. Hood had an interesting visit in Kansas City, where he looked up the various irrigation pumps upon the market, with a view to his testing experiments.

The workers upon the steam conduit were very fortunate in escaping a slide in one of their tunnels which came soon after they had finished the tunnel and were preparing supports for the work.

The covering of steam pipes is progressing in excellent style. A car load of brick goes into the deeper portion of the conduit to enlarge it to such size that a man can pass through, if necessary.

Assistant Otis has some very fine specimens of nodules produced by bacteria upon soy beans through various means of culture which he has been trying. Some of them will find their place in the Agricultural Museum now growing.

Bulletin No. 59, giving the wheat experiments of Prof. Georgeson for 1895-6, gains an extended mention in the *Kansas Farmer* of August 27th. The article closes with this remark: "The bulletin, of which the foregoing are but brief excerpts, is a most valuable one for the wheatgrower."

Dr. J. S. Hunt and Mr. Wm. Collins from Queensland, Australia, visited the College last Monday, introduced by Prof. Shelton. They are making a hurried investigation of Texas fever in this country, commissioned by the Government, with a view to preventing its extension in Australia, if possible.

GRADUATES AND FORMER STUDENTS.

A. L. Peter, '96, called at the College on the 24th.

C. C. Smith, '94, teaches in Wabaunsee this year.

V. Emrick, '95, begins teaching today at McFarland.

Clara V. Newell, '96, has work in the Spot Cash Store.

V. I. Sandt, '94, took the State examination here last week.

C. W. Lyman, '96, is clerk in the shoe store of John Coons.

J. J. Fryhofer, '96, visited College friends on Wednesday while on his way to Atchison, to take the

position of Supervisor in the Soldiers' Orphans' Home.

W. E. Thackrey, '96, takes the home of Prof. Lee for the next year.

Maud E. Kennett, '95, goes to the State Normal School for next year.

C. E. Copeland, Second-year in 1895-6, goes to the State University the coming year.

W. W. Hutto, '91, takes the College Hill school again this year at increased salary.

Mrs. Lizzie J. Davies-Evans, student in 1882-3, has taken a house in town on Fremont Street.

M. R. Smith, Second-year in 1895-6, takes the Pharmacy course at the State University next year.

Geo. K. Thompson, '93, editor of the *Blue Rapids Motor*, was in town for an hour or two on Saturday.

E. H. Perry, '86, of Perry, O. T., is nominated for Territorial Councilman by the Republicans of his district.

H. G. Pope, '94, is Editor in Chief of the *Kansas Lawyer*, issued from the Law Department of the State University.

C. A. Johnson, '95, has been elected Vice-President, and R. S. Kellogg, '96, Secretary, of the Russell Educational Association; while Susan E. Johnson, '96, serves the Northwest District Association as President.

C. P. Hartley, '92, Harrison, Idaho, shows his continued interest in his alma mater and in his favorite science by the gift to the Entomological Museum of a fine series of pupæ and adults of *Neophasia menapia*, with its parasites. This insect is allied to our white cabbage butterfly, but lives as larva upon the leaves of a species of pine.

Notes from the Farm.

Some twenty acres of soy beans growing as second crop after wheat, are an interesting and promising crop this summer. Preparation for seeding was made by plowing the stubble and harrowing once,

after which the beans were drilled in rows thirty-two inches apart with the grain drill. Yellow Soy, one of the earliest and best varieties, was used. The putting in of this crop was delayed by the regular work, and so extended over some period of time.

About one-third of the ground was plowed and seeded during the last three days of June; another portion, July 11th; and the balance was seeded July 24th. The first seeding has made a fine growth. The plants,

standing about two feet tall, are well-filled with pods, and will mature ten to twelve bushels of grain per acre, if an early frost does not catch them. The second seeding will hardly mature grain before frost,

but will make a fine crop for feed. The last planting is in blossom at this writing, and has a growth of a foot, and will make a fair crop of hay before frost.

All of the crop has been cultivated once, killing the few small weeds and volunteer wheat and leaving the surface in a mellow condition. The ground has readily absorbed all rain, and the evaporation has been reduced to the minimum. The ground is now in fine condition for wheat seeding, drilling to oats in the spring, or listing to corn.

To investigate this same line of cropping, a rotation experiment of wheat with leguminous crops was planned a couple of years ago, but, owing to the wheat failures, this is the first year it has been carried out successfully. The treatments are five, as follows:—

First, wheat to be followed by soy beans the same year, and the beans harvested in the fall in time for seeding the land to wheat for the next year.

Second, wheat to be followed by soy beans the same year, and to be plowed under as green manure in time for seeding to wheat for the next year. The soy beans are drilled in rows, and cultivated.

The third rotation differs from the first, and the fourth from the second, in that cow peas are used instead of soy beans, and are drilled in rows eight inches apart, not to be cultivated.

The fifth rotation takes two years for completion. The first year's cropping is very similar to that of the first rotation, differing in that it is not seeded to wheat in the fall. In the second year, field peas will be followed by soy beans to be harvested in the fall in time for wheat seeding.

In the rotations where the leguminous crops are to be removed, the wheat will be drilled in without further plowing of the ground. All the plots produced a good crop of wheat this year, and at the present time the peas and beans have a growth of from twelve to fourteen inches.

All the corn experiments suffered more or less from the dry spell the first half of August. Some very early corn escaped with but little injury, but aside from this most of the grain was in the dough stage. Before rain came, the leaves and husks were pretty well dried up and the grain more or less shriveled, and the crop will therefore be light. Most of it is cut and shocked now.

The ensilage corn, a large late variety, had just tasseled out and was in a critical state and the drouth was quite severe on it. The lower part of the stalks were badly fired; only about half the usual amount of ears formed and they were small. The rains freshened up the crop some, and now the task of putting up the 225 tons of silage is well under way. This job is hastened a great deal by the use of a new Tornado mammoth silage cutter, No. 13, that is working very satisfactorily. The old Ross, 13 A, that

has been in use since 1888, is laid aside, and is now offered for sale cheap. Its work has been the cutting of some 225 tons of silage every year, besides more or less dry forage during the winter. It has proved a very proficient and serviceable cutter.

The wheat ground is in very fine condition, and everything points to a favorable start with the wheat experiments this fall. The old line of experiments will be repeated again with but little change.

The oats crop turned out very disappointingly this year. Everything was favorable until the crop was well headed out, when rust struck it, causing the grain to fill very poorly. The early planting and early varieties made a fair yield under the conditions. In the "time of seeding" experiment, where nine seedings were made at intervals of a week apart, the first seeding, March 2nd, gave a yield of 38 bushels per acre, and from this there is a falling off with each succeeding seeding until April 6th, where the yield was but little over six bushels per acre, and seedings later than this failed to produce grain. F. C. BURTIS.

Shop Notes.

The summer work of general mechanical sorts for the institution, together with getting the shops in order for a new term's work, has kept an average force of fifteen men busy through vacation time.

Foreman House has found it no small matter to sharpen some 1400 tools used by the students. With the best of efforts to have students leave tools in perfect shape, they still need sharpening in order that new students may not have the example of imperfect tools to begin with.

The dynamo that has been so long in building has been pushed nearer completion.

Preparation for the pump experiment has made extra machine shop work.

A large steam coil is being put below the chapel platform.

Over 300 cubic yards of rock were crushed by our new crusher with an electric motor, and built into a road 600 feet long, running south from Science Hall.

The \$1,300 appropriated for covering the main steam pipe is being spent for the purpose, and has made steady work for seven or eight men all summer.

The Armory building absorbed paint and kalsomine like a sponge, and as a result looks neater than for some time.

Between oversight of current work and plans for the future, the office has been busy all summer.

From Prof. Shelton.

Under date of July 29th, Prof. E. M. Shelton, who gained renown as an agriculturist during his connection of fourteen years with this College, writes of his work and prospects, in a letter to Pres. Fairchild:—

"We are just now busy with the details of that long promised agricultural college. I hesitated to write concerning this long deferred enterprise, but at the present time it is quite beyond the experimental stage; it is, in fact, a reality as far as it goes. Work is already being vigorously prosecuted upon the buildings, which are to cost about £6000, and large contracts for fencing and clearing the land have already been let, so you see that it will be safe after this to talk of the Queensland Agricultural College. Speaking of the long time required by us to reach this goal, reminds me that times here have changed a good deal in the last two or three years. We have had very hard times in Queensland, and in Australia generally, but thanks to good management, the absence of politicians who know all about 'feenance,' and thanks also to a generous climate and hard work, the colony seems to be pretty well out of rough water in which it has sailed for some years past. Times now are fairly good. There is an abundance of employment for those who want it, and are capable of doing the work. Public enterprises, railroad building, etc., are being pushed with considerable vigor, so that the outlook for the colony, to say the least, is hopeful indeed. Well, a part of the energy available through the improved times is to be expended on this agricultural college. Besides the improvements already spoken of, we have upon the estimates £4000 for incidentals, fencing, clearing, live-stock, implements, etc., besides the pay for a small teaching force, and £1000 additional for furniture. All told, the estimates now before Parliament show very nearly £7000 for next year's work in equipping and putting in order the new school. This, I am sure you will agree with me, is not bad for a small community such as Queensland is, and considering how insignificant our agriculture is as compared with yours, say. We hope to have everything ready to open the school about March of next year, but may possibly be able to begin work a little in advance of this date. The school, I may say to you, will be run on strictly agricultural lines. We have 1700 acres of land, selected by the Under Secretary and myself, and which I believe is the best bit of land, naturally, owned by any agricultural college anywhere. It is located sixty miles west of Brisbane, upon the main line of railway, and in a district that will grow anything from bananas to wheat. I will send you a prospectus after a little, showing something of our intentions, which I may say are to make the school distinctly agricultural. You will, I fear, be appalled at the amount of P. M. and kindred industrial work that a course in the Queensland Agricultural College involves."

"We expect to remove to the college in the next three or four months. I shall have the principalship of the school, with a very free hand in its management. They are putting us up an excellent house, which will cost about \$5000."

Education.

The time for opening of the fall term of the public schools, and for the beginning of the regular course of instruction for the year in our higher institutions of learning, is near at hand. This fact will make a few notes on the subject of education especially timely. In a general way, there is an almost universal admission that education is, or may be, of great value. Occasionally we read or hear of some young person who has been made unhappy by being educated above his or her surroundings, but such instances are rare, and they usually carry with them the suggestion that there is something lacking in the person to whom increased knowledge brings unhappiness. It is certain that to the great majority, education adds greatly to the interest and pleasure of life, as well as largely increases the power of being useful in the world. Knowledge has also come to be pretty generally recognized as a great help in the management of business. In this respect there has been a marked change of opinion during the past century. Indeed, we do not have to go back a hundred years to find a time when a very limited amount of schooling was thought to be ample for the boys who were to be farmers or mechanics, or, in short, for all who were not designed for the learned professions. The girls were supposed to need even less education than the boys. Their studies were very few in number, and were carried but little beyond merely the rudimentary stage.

Although there has been a change in sentiment regarding the value of education, there are still many people who do not hold it in sufficient regard. There are many children who do not go to school as much as they should, and large numbers of young people, whose best interests require that they take either a full or a partial course in some of the numerous academies, colleges, or seminaries, for which our country is famed, but whose circumstances are such that they seem to be excluded from these institutions. A few care little for books, and are almost glad of any excuse to keep them from school. Later in life, probably when too late to be of any practical benefit, they will bitterly regret this indifference. But the great majority of young people would, we believe, be glad to secure a better education than they have yet been able to obtain. With the parents it is very much as it is with the young people. A few are indifferent and some are holding back because of a misconception of the real object of advanced education, but the great majority would be heartily glad to do more than they have yet done in the way of educating their children. In the latter class there are many who are deterred from carrying out their wishes in this respect on account of the financial outlay which such a course would necessitate.

It is very true that education, like everything else that is worth having, costs something. There is a deal of direct expense involved in keeping a boy or girl at school, and on many farms the loss of the services of the youth is an item of considerable importance. When a farmer has about all he can do to make his books balance at the end of the year, the proposition to send one or more of his children, who have obtained the rudiments of knowledge, to a higher school or college, is really a serious matter. Yet the good of the children, not merely in the present year, but in the future, will be influenced by the decision, and this should outweigh the matter of the convenience of the parents. In many cases, some means of self-denial may be found, or some improvement in the method of farming which will increase the income, may be devised, and thus the money required for educational expenses may be provided. Where the farmer is out of debt, has his buildings in comfortable condition, and a little money laid up for emergencies, the case is different. There should be no hesitation about giving the young folks a chance to attend schools of a high grade. With the exception of a good moral character, there is no capital which is as useful to a young person starting in life as a good education. And, though we do not believe in forcing an unwilling youth to pursue any advanced studies, we are firmly of the opinion that farmers should encourage their children to make the most of all educational advantages that are within reach.

In regard to the misconception to which we have referred, it may be said that a good many people, in all, believe that the learning of facts, or to state it in a somewhat common phrase, "storing the mind with knowledge," is the main benefit to be derived from attendance at educational institutions that are above the common school grade. It is very natural that farmers who hold this view should question the expediency of sending their children to these institutions. With the exception of the agricultural colleges and industrial schools, none of the studies pursued in such institutions do not have a very direct bearing upon the actual work on the farm, and the farmer fears that they would be of little or no practical benefit. But this idea is incorrect. While many facts are learned, the mere accumulation of knowledge, though very valuable, is not the principal end of education. The mental discipline, the quickening and developing of the intellectual perceptions and powers, and the ability to "think straight and see clear," are worth far more to a man or woman in the actual work of life than the mere accumulation of facts. To understand principles and know how to apply them is far better than to have the mind stored with facts, a large proportion of which, though of interest in themselves, will never be used.

It hardly need be said that the agricultural college is by far the best adapted of all educational institutions to meet the wants of young men who expect to become farmers. In these colleges, the facts that are learned and the principles that are taught are along the same lines, and along lines that will be

practically useful through life. We believe that, even though it may require a great effort, farmers should endeavor to send their sons to these institutions. If they cannot send them for the full course, the short course now provided by some of these colleges will be available to many, and will prove of incalculable benefit. But if even this is out of the question, a few terms at some high school or academy should be given, if possible. And the girls, as well as the boys, should share in educational advantages. Our young people should be fitted to become not merely farmers and farmers' wives, but intelligent, efficient, and useful men and women.—*Practical Farmer.*

The Education for the Farmer.

We don't want to discuss specific lines of study at this time, but rather to urge a sentiment that will not rob rural life of its best blood. We want a system of training that will qualify a young man or woman for the business and citizenship of farm life, and incline them to pursuits thereof with all the joys of a Cato. The education that bristles with sneers at the toil of the field, that makes the man glorify himself in the thought that he does not need to work at the plow or hoe, that stultifies him above the uniform of blue overalls and the broad-brimmed hat, may possibly find a livelihood for the unhappy recipient, but it is sure to curse the second and third generations. The learned man who manifests an exalted air and seems to say, "Come thou not near me, I am holier than thou," had better never been educated. Indeed, he had better never been born. That broad education which brings a man back to the farm to follow the routine work in the lead of a plain common life, not dissimilar from the neighbors', save the natural dignity and strength that brain power lends to the thought and speech and actions, is the education for the farmer's son. We want a policy pervading the classroom, the athletic ground, the social circle, the everywhere of our agricultural institutions of learning, that will ennoble the pursuit of agriculture, and make the student feel that he is being trained for one of the highest callings in life, rather than to belittle the profession with base inuendo until the graduate will seek out employment as clerk or typewriter, and lead a life of a sort of dignified servitude, instead of enjoying the independence and kingship of the farm.

His education has been a failure who thinks that because he has merited a piece of parchment, bearing the large seal of the college and the awkward chirography of a board of trustees, he must be permitted to wear kid gloves and bifurcated coats every day, and absorb a living from the populace by reason of his big name. As we have said, in substance, the education that will send the student to field or shop to work with willing as well as skillful hand, and lead a life full of the common virtues and fraternal love, instead of one that is full of deceit and conceit, and gilded with a sort of elegant selfishness, is the education for the nineteenth century. Every young man so educated will be a guardian angel, a beacon light, to the community fortunate in his citizenship. He will be an example at the town meeting, at the public celebration, and in the council chamber. He will be a disciplinary force among the bad boys at church, in the lyceum, and in the political gathering. He will be the man who will keep the weeds mowed along the fence lines, and have three stalks in the hill and no hills missing. The tares in his field and in his life will be pulled out in season. We would like to see the wonderful fields of the matchless West teeming with a population of such men. They would touch the surface with beautiful roads and lawns, grand fields of grain and grass, magnificent houses and barns, until our peerless country would be truly the garden of the Gods. Give us an education that will bring out the grandeur and sublimity of agricultural life, that will content the young farmer to be first in the corn field, rather than second at Rome, and we will guarantee the social compact of state and nation. We will fence in the vices of municipalities with the virtues of the rural homes. The palmiest days of Rome went by when her royalty patronized the farm, but her great value counted for naught when her sickles began to rust.—*Iowa Homestead.*

Agricultural Education.

Probably no other branch of education has made more progress in the last twenty years than that of farming. Ten years ago, we saw a piece of land, surrounded by a dilapidated rail fence, its owner living in a log house, and his stock in a rudely constructed building, and the crops growing with difficulty under the methods of cultivation which the owner employed. But a change has come over it. Today we see an educated farmer, his farm bearing every evidence of hard thought and study. We see the most improved methods employed by him in raising his crops, feeding his stock, and disposing of his produce. Years ago muscle was thought the only element necessary for the farmer to possess; now brain work is the necessary factor. It requires as much brain work to run a farm successfully as it does any other business, and the farmer who studies scientifically his method of farming is going to be successful. See what is being done to educate the farmers and their sons. Almost every State of our Union has an experiment station, where new methods are tested, and reports of these are sent to all the farmers in their vicinity. Farmers' Institutes are now being held in many of the States in order that the farmers may come together and learn from each other new methods of cultivating the farm crops and feeding their stock for meat or for dairy purposes. Farm

papers of all classes and languages are being printed and being circulated throughout the agricultural districts. Agricultural schools are at present being established at most of our state universities and colleges to which our younger farmers may be sent and taught the most improved methods of farming. We send young men away to colleges that they may become doctors, lawyers, teachers, and engineers, and why can we not send them to school to become farmers? The time has come when, if we wish the young farmers to become successful in after life, we must educate them in the most improved methods of farming. The young farmers of today are the builders of the farmers for tomorrow. If we do not educate them in the principles of agriculture, how are we to expect them to become successful as such in after life.—*J. L. Herbst, in Live-Stock Indicator.*

Grounds and Buildings.

The College grounds and buildings, occupying an elevation at the western limits of the city of Manhattan, and facing towards the city, are beautiful in location. The grounds include an irregular plat in the midst of a fine farm, with orchard, vineyard, and sample gardens attached, the whole being surrounded by a durable stone walls. The grounds are tastefully laid out and extensively planted, according to the design of a professional landscape gardener, while well-graveled drives and good walks lead to the various buildings. All of these are of the famed Manhattan limestone, of simple but neat styles of architecture, and admirably suited to their use. All recreation rooms are excellently lighted and ventilated, and are all heated by steam or hot water. A complete system of sewerage has been provided.

College, 152x250 feet in extreme dimensions, arranged in three distinct structures, with connecting corridors. This building contains, in its two stories and basement, offices, reception room, cloak rooms, studies, chapel, library, reading room, kitchen laboratory and dairy, sewing room, society rooms, printing office, and twelve class rooms.

Chemical Laboratory, one story, 26x90 and 46x75 feet of floor space, in form of a cross. It contains eight rooms, occupied by the Department of Chemistry and Mineralogy.

Mechanics' Hall, 39x103 feet, two stories, and 40x80 feet, one story, occupied by wood and iron shops music rooms, iron foundry, lumber rooms, etc., in addition.

Horticultural Hall, 32x80 feet, one story and cellar, having cabinet room, class room, and storage, with greenhouse attached.

Horticultural and Entomological Laboratory, with propagating houses attached.

Museum Building, 46x96 feet, and two stories high. This building, which has served many purposes, is now fitted for an armory, drill room, and veterinary laboratory below, and for class room and laboratory for Department of Botany and Museum of Natural History above.

Science Hall, containing the library, with ample reading rooms; class rooms and laboratories, and cabinet room for zoology, entomology, and botany; and suitable rooms for the various College societies.

Appropriation is also made for a central steam plant, to furnish heat and power for all the buildings. This plant is to cost \$14,000, and will be completed in the fall of 1893.

The farm barn is a double but connected stone structure, 50x75 feet and 48x96 feet, with an addition of sheds and experimental pens 40x50 feet. A basement, having stables for 75 head of cattle, silos, engine room, and granaries, underlies the entire structure.

The horticultural barn is a stone building, containing store-room, granary, and stables for several horses.

The foundries, lumber house, implement house, piggery, and various out-buildings are of wood.

Two stone dwellings, occupied by the President and the Professor of Agriculture.

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HISTORIC NOTES ON DRAWING IN THE PUBLIC SCHOOLS. III.

BY PROF. J. D. WALTERS.

PROFESSOR WALTER SMITH entered upon his duties as State Art Director in October, 1870, and remained until 1883, when he returned to England. The State Normal Art School in Boston was founded three years after his appointment, and he was made its responsible head also. Through this provision for the proper training of teachers, the success of the experiment of public industrial art training in America was greatly promoted. Of other wheels set in motion, may be mentioned his regular meetings with the teachers and school authorities throughout the State, his lectures before teachers' institutes, the introduction of drawing as a major study in the normal schools, the organization of annual public exhibitions of school drawings, the importation of casts of classic statuary and architectural fragments, the preparation of a series of sixteen textbooks for pupils and of several manuals for teachers, and the publication of two volumes of discussions on topics pertaining to art and art education. The main maxims of Prof. Smith may be epitomized as follows:—

1. Drawing is not an amusement, but a help toward the serious work of life. Mere picture-making must be abolished, and work having industrial aims must be substituted.
2. The only means by which public taste can be improved is by cultivating a perception and love of the beautiful in the mind and heart of every child by means of drawing.
3. "Though tasks may vary, and degrees of intelligence be expressed in this subject as in all others, and good teaching be as easy to distinguish, yet exactly 100 per cent of the children succeed in learning to draw."
4. The evening drawing schools will do little good until the pupils approach them prepared by their practice in the day schools.
5. It is not so much the manual skill displayed in the children's drawings which determines their educational value, as the thoughts they have induced and the habits of accuracy, observation, and self-reliance they have helped to create.
6. The subjects which should be required in primary schools are knowledge of geometric forms and definitions, practice in drawing from flat copies and the blackboard of simple objects and ornamental details, elementary linear design, drawing from dictation of exact forms in defined positions, drawing from memory of previously drawn exercises, learning the names, though not drawing the forms, of geometric solids.
7. In grammar schools, the pupils should be taught the use of the ruler and compass in working out plane geometrical problems and in executing the mechanical repetitions of elementary design.
8. The grammar school should also teach the first features of applied design; namely, the invention or adaptation of the forms of nature or historical ornament.
9. Enlarging and reducing from flat examples of natural forms of historical details of ornament are necessary to give knowledge of proportion of accepted types of the beautiful in design and ornament.
10. Object drawing, from the copy to learn principles, and from the object itself to learn their application, is a very important branch of grammar school work.

11. By alternation of exercises, the thinking, inquiring, and executing faculties of the pupils are aroused and trained, correct habits of accurate observation are formed, and incipient taste is fructified.

12. In the high school, the processes of drawing should be applied to some useful branches of industrial art. Here the pupils are old enough to be taught special subjects. (As soon as the pupils who have been well taught in the classes below take their places in the high schools.)

13. All elementary teaching of drawing should be done by regular, not special, teachers; what all pupils can learn, all teachers can teach.

Prof. Walter Smith was eminently successful in his work, and justly deserved a better treatment than he ultimately received at the hands of the Boston School Board and the State Board of Education of Massachusetts. It was perhaps true that in some counties but little interest could be awakened for the study of drawing; that he greatly overshot the line of possibilities when he advised that special industrial work should be taught in the high schools; that

his contempt for the sketchy French methods was too severe; that he asked too much work of his collaborators and the students; yet, it must be acknowledged that his views have become the foundation of future American school methods. He undertook a Herculean job, and did his work well. The memory of his public drawing exhibitions, many of which were attended by more than 30,000 visitors, and the history of the brilliant success of the first ten years of the State Normal Art School will form a lasting monument to the genius of Walter Smith.

The example of Massachusetts was soon followed by other States, though none organized a state normal art school. In New York City, Cooper Union endeavored to meet the demand for trained teachers by instituting a normal class, which still exists, and has done good service for the State. The act by the legislature of New York was passed in 1875, but, compared with that of Massachusetts, it was vague and remained comparatively ineffectual in that it did not regulate the amount of work to be done, nor the time to be given to the study. It also contained a clause permitting the superintendent of public instruction to altogether excuse schools from teaching the new branch of study. The same may be said with regard to Maine, whose Legislature authorized the teaching of drawing in all public schools in 1871. In Washington, D. C., where the experiment in Massachusetts had been carefully watched by the school authorities, drawing had been taught since 1868, but, the results of this attempt not being satisfactory, in 1873 the city adopted the scheme and textbooks of Prof. Walter Smith, and secured the services of Mrs. Susan E. Fuller of the New York School of Design for Women under whose care most extraordinary results were obtained from the start.

It would require the space of a large volume to relate in detail the progress that school drawing has made in the different States, west as well as east, during the last ten years, but the chief development has been in that the aims and possibilities are better understood than heretofore. The new study is not any longer an experiment. Art academies, polytechnic institutes, and manual training schools organized in nearly every larger city, have assisted in producing special teachers who are able to cope with the special problems of higher art instruction, and these, in turn, have had their effect upon the common school teachers. The textbooks of Walter Smith have long since been superseded by other works, neater in form and completer in many respects. There are the series of White, Prang, Thompson, Cross, and several others, each of which is preferable in some branch or other to those of the old master from Leeds. If we are to believe certain high testimony from Zurich and Leipzig, we now have the neatest and best made textbooks in drawing in the world. Handbooks on art, and numerous translations of German and French works on art history and architecture, have been published during the decade. In short, drawing has come to stay. The fact that many points relating to the course of study and the methods of teaching are still being debated is no indication of ill understood aims. There will always be discussions; there are discussions on the methods of teaching, arithmetic or history. May we fully comprehend that no method and no textbook can be the best under all conditions.

Food for Thought.

At one of the farmer's institutes held in Indiana recently a minister made the address of welcome, and among other things said, "Yours is an honorable, useful calling, if it does not require any particular skill." Now, I suspect, says an unidentified exchange, the frown on some of our faces made him think he had blundered, and he tried later on to cover up his mistake. But truly, do not many people, even some living on the farm, think about as that good minister did, when he made the first statement? It has not been generally considered that any great skill was required to be a farmer. We have picked out the smart boys to make ministers of and lawyers and doctors and merchants. The duller ones could do best on the farm, and so they were kept at home. Farming has suffered accordingly. The brightest minds have been sent forth to supply every other calling with its strongest men. Hence other callings have advanced, and agriculture has fallen behind in the race. We can furnish presidents, governors, and other great men from the farm, but we need some of the brightest minds to help elevate agriculture. It is no longer an occupation where drudging, common labor is required. With skill and brains to direct us, we may in due time make our farms little gardens of Eden, places that many of the learned professional men may well envy us the possession of. It takes a

high degree of skill, my ministerial friend, to arrange to almost entirely overcome the evil effects of too much rain or serious drought, to build up the fertility of impoverished land, to run all the complicated machinery we need successfully, to save all the manure and use it to the best advantage, and to do a hundred other things that the thoroughly successful farmer must do. The mere writing of sermons and attending to church matters, for a man educated in this line, would seem to be a much easier job for the head, although it makes a difference, of course, how high up in the ministry a man is. I am not acquainted with any profession where more brains, that is, thought and study, are required than on the farm where one is striving to do his very best in every line. And I repeat what I have often said, "That nowhere on earth can you find an honorable, legitimate, safe, healthful business that will pay any better than farming, in proportion to the brains and capital invested."—*Exchange.*

How to Get Out of Debt.

The only way for farmers to get out of debt, and keep out, is for every one in the family to contribute his or her mite, and to make the land take care of them. So many farmers raise one thing, and then are forced to buy so many other things, that the ready money becomes exhausted, and bills accumulate. They should raise all of their own vegetables, fruit, eggs, poultry, and meat, besides making their own butter; and the surplus of these articles should provide them with groceries and dry goods. If they will only take pains with their produce and arrange it attractively they will meet with no difficulty in disposing of it. Wives and daughters see to this. Don't allow badly put up packages to leave the farm. I wish every woman in Oregon who lives on a place where anything is raised and sent to market would read the little book written by Mrs. Jones, "The Poor Man's Cow," and profit by the plain, wholesome advice contained in it. They would then see what a woman can do who is industrious and who has sense enough to keep posted as to the demands of trade. What has been done by one can be done by another. The same plan that makes a success of the dairy will work just as well in the orchard or poultry yard. Be painstaking, be honest, be cleanly, be sure to have the best, and be particular about the appearance of your packages.

The chief fault with the majority of farmers the world over is carelessness. One farmer in ten is successful, and it is their own fault that the number who win is so small. If goods are not first-class they will not command first-class prices. It takes just as long to make poor butter as good, just as long to raise and pack poor fruit as good, just as much expense to raise a poor cow as a good one, and it is just the same with hogs and sheep.—*Oregon Agriculturist.*

The Little Farm, Well Tilled.

In the suburbs of a nice town, we found an enterprising young man working a one-acre market garden where all kinds of garden truck was being nicely and thoroughly cared for. Not a weed was to be seen. Every plant showed a remarkable thrifty growth. We remarked, "You must have had lots of rain here." "Oh no," says the proprietor, "not until quite recently, but I have spent the most of my time cultivating and hoeing this patch, and sold to date (June 10th) \$30 worth," and his harvest had just begun. Two days later, not far from this place, we heard of a man that was running a twenty-acre garden. We were anxious to see it, and a short drive brought us to the spot. It was a big spot, too. Weeds were numerous all over it. The manager seemed to be in no particular hurry. His entire crop had a backward appearance, and we predict a failure for him. Now, the one-acre man will have much to say about the remarkable productivity and great value of Dakota soil, while the twenty-acre man will curse the soil, climate, railroads, and everything else but himself. In Kansas, Nebraska, and Colorado we have seen the same clearly demonstrated. These facts, coupled with what we have seen in the older Eastern States, prompts us to repeat that there is no section of this great country where the intelligent, pushing, enterprising young man with a little money can get as much and as sure an income as in those States, if he will keep in mind the story of the little farm well tilled.—*Dakota Farmer.*

Business Sense in Farming.

I suppose by the phrase "new farmer" is meant a man who can apply the same principles to farming that a business man must apply to his business in the city to make it profitable.

Every possible and true economy must be practical, and sanitary rules must be applied around all buildings.

A considerable sphere of knowledge is necessary, which should be brought to our agriculturist through an intimate relation with our experiment stations, or by a preparation at our agricultural college or other good training school.

Cultivate no more land than you can till to a profit. Try to have some textbooks introduced into the schools of our rural districts that shall teach of those natural objects of interest that accompany life in the country. Good mental training can thus be gained, and profitable knowledge obtained.

These are some of the points to make the "new farmer," who must have energy and pluck.—*Francis H. Appleton, President New England Agricultural Society.*

FARM NOTES FROM VARIOUS SOURCES.

A few acres of ensilage corn, cut at the right time, and put in a good silo, will help us solve the problem as to how stock may be kept profitably. Land and stock can be combined to no better advantage than by using the first to grow ensilage, and then feed the product to the second.—*Farmer's Guide.*

The country boy is surrounded by healthful influences. He is not naturally better nor more morally inclined, but he is freer from degrading vices. This must account for the evidences of superior excellence in the country bred boy, and account for many achievements in the world from this class.—*Farmer's Home Weekly.*

Farming is certainly much better done than it was ten or twenty years ago, and the farmer himself has improved as fast as his methods of farming. Some of this improvement is clearly traceable to reading agricultural papers and agricultural departments in the home papers. In the multitude of counsel there is wisdom.—*Agricultural Epitomist.*

The liquid manure is the most valuable product of the farm, and it is the one regarding which the least care is taken in saving it. There is no positive need of water tight tanks to receive it, for it can be allowed to mingle with muck, road dust, or saw dust, and can then be stirred with the heavier manures, and repay all the labor it has cost.—*Farmer's Guide.*

We should not forget that we have partners who are equally interested in all our business transactions. The wife's efficiency in the home will be increased by a knowledge of, and interest in, the husband's business. As no other branch of business owes so much of its prosperity to wives as does the farmer's, do not be selfish in this matter. See that your wife has all the modern improvements for lessening her labors.—*Ohio Farmer.*

It is a wonder that a farmer should leave the farm when he can drink cream in his coffee, eat the freshest of fruits, with cream if he desires it, and enjoy early garden vegetables, and laugh and grow fat at other people's follies and his own mistakes. If he is the man he should be, he has little use for cod liver oil. The machinery of his life makes but little friction and he don't need the oil. Good humor, after all, is the best lubricator for running life's machinery.—*Live Stock Indicator.*

The life of a farmer has often been called a life of drudgery. There is no occupation that has a larger ratio of inspiring labor to one whose tastes are in harmony with rural life. The weak point in American farming has been the lack of appreciation of the equipments necessary to a successful career. Too many men have been willing to be thieves of the soil's resources that they might swell their bank accounts. To the young man or young woman fairly educated, there is no more promising field of enterprise.—*Colman's Rural World.*

In a recent conversation with the president and general manager of one of the largest agricultural implement manufacturing companies in Illinois he remarked: "While I have accumulated a literal amount in my short life, yet while I am comparatively young in years I am old in feeling, and were I to start again I would take a moderately sized farm and stay with it, where I could live and enjoy every day of my life as no other class of men do." These ideas are not uncommon with men who are loaded with the care and worry of the details of business life.—*Western Soil Culture.*

"There is no better hay for horses generally than bright, clean fodder corn grown for that purpose." Thus writes Prof. Henry. We are slow to understand and appreciate this fact; it takes time for us to learn that corn is the "giant grass," as Prof. Henry puts it. We have been raising this crop almost wholly for its seed. What intelligent agriculturist would raise timothy or clover simply for seed and throw away the stalks? That is just about what we have been doing with our corn crop. The shortness of our meadows will this year teach us to appreciate the corn plant as a forage crop. Fodder corn can be grown for the horses or the corn fodder may be shredded for their use. Baled shredded fodder has already come on the market as a horse feed; it is bound to come greatly into use. As a substitute for the best timothy hay, its value has been tried and proved.

Economy on the Farm.

Do all the work possible with suitable implements and the horse, but do not omit the hand-hoe if necessary to use it.

Harvest all crops when at the most profitable stage for use.

Have good accommodation for stock, and plenty of room for storage of crops and housing of all farm implements and machines.

Aim to secure the comforts of animals when at the barn, and convenience in caring for them.

Of the stock, keep secure the best for the purpose, and by diligent selection, breeding, and care keep well up in the standard of excellence.

Always remember that one good animal, of whatever kind or breed, is worth at least two ordinary ones, and that the one is much more cheaply kept than the two. Here is true economy.

Keep the farm, stock, and crops improving from year to year, as here is where the progress comes in.

Be liberal in the management of household affairs; make a home in the true sense of the word to all connected with it.

Provide abundantly for intellectual as well as physical wants, for the soul is the real man or woman.

Trust in the Lord and do your work well, remembering that all are workers together with Him, and that although one may plant and cultivate, 'tis God that giveth the increase.—*E. R. Towle, in Massachusetts Ploughman.*

Accessions to the Library.

(Continued from Page 11.)

Dictionary of Chemical Solubilities, Comey.
Cheddar Cheese Making, Decker.
Milk Testing, Schoenman.
History of the U. S. from the Compromise of 1850, 3 Vols., Rhodes.
Teaching Elementary Chemistry, Tilden.
Carbon Compounds, Richter.
Microchemical Analysis.
Solution and Electrolysis, Whetham.
Analytical Chemistry, Menschutkin.
Coal Tar Colors, The Sanitary Relations, Weyl.
The Tannins, Trimble, 2 Vols.
Coordinate Geometry, Loney.
Water Softening and Purification, Collett.
Primer of Quaternions, Hathaway.
Methods of Mind-Reading, Aiken.
School Management, White.
Japan, Murray.
Australasia, Tregarthen.
Venice, Wiel.
South Africa, Theal.
Dawn of Civilization, Maspero.
Economic Interpretation of History, Rogers.
Municipal Government in Continental Europe, Shaw.
Examination of the Nature of the State, Willoughby.
Labor in Relation to Law, Stinson.
Eight Hours for Work, Rae.
International Law, Lawrence.
Thirty Years of Labor, 1859-1889, Powderly.
Emigration and Immigration, Mayo-Smith.
Sound Currency, 1895.
The Earth and Its Inhabitants, 19 Vols., Reclus.
Scope and Method of Political Economy, Keynes.
Introduction to the Study of Political Economy, Cossa.
Practicable Socialism, Barnett.
Unearned Increment, Dawson.
Socialism in England, Webb.
Land and the Laborers, Stubbs.
Co-operative Commonwealth, Gronlund.
History of Co-operation in England, 2 Vols., Hoake.
Introduction to Social Philosophy, Mackenzie.
Minerals, and How to Study Them, Dana.

College Business.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.
Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.
All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka.
The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.
Donations for the Library or Museums should be sent to the Librarian, or to Prof. Popenoe, Chairman of Committee on Museums.
Questions, scientific or practical, concerning the different departments of study and work, may be addressed to the several Professors and Superintendents.
General information concerning the College and its work—studies, examinations, grades, boarding-places, etc.—may be obtained at the office of the President, or by addressing the Secretary.
The Experiment Station should be addressed through the Secretary.

MANHATTAN ADVERTISEMENTS.

BOOKS AND STATIONERY.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc.

VARNEY'S BOOK-STORE.—Popular Headquarters for College Text-Books and Supplies. Second-Hand Books often as good as new. Call when down town. Always glad to see you.

LESLIE SMITH. College and School Books and Stationery. Note-books, tablets, inks, pens, pencils, drawing instruments, etc. Also a full line of reliable boots, shoes, slippers, and rubbers. Prices are low.

DRY GOODS.

E. A. WHARTON'S is the most popular Dry Goods Store in Manhattan. The greatest stock, the very latest styles, the most popular prices. Always pleased to show goods.

CLOTHING.

ELLIOT & GARRETSON, Clothiers and Furnishers, invite students and all other College people to call and examine their large stock of new goods. All the desirable things in men's wear. Latest styles in every department.

KNOTSMAN CLOTHING COMPANY offers a great variety of clothing and furnishing goods at prices to suit the times. Call without fail before buying.

WATCHES, JEWELRY.

R. E. LOFINCK keeps a big stock of Watches, Clocks, Jewelry and Gold Spectacles, also Musical Instruments.

GENERAL MERCHANDISE.

THE SPOT CASH STORE is Headquarters for Dry Goods, Notions, Boots and Shoes, Hats and Caps, Clothing, and Ladies' Wraps. Lowest prices in the city. A complete grocery store in connection.

DENTIST.

DR. C. P. BLACHLY, Dentist. Gold filling a specialty. Telephone No. 139.

MEAT MARKET.

SCHULTZ BROS. offer Fresh and Salt Meats in great variety. Students are invited to call at their market on Poyntz Avenue, one door east of Fox's bookstore, or give orders to delivery wagon.

Calendar.

1896-97.
 Fall Term—September 10th to December 19th.
 Winter Term—January 5th to March 27th.
 Spring Term—March 30th to June 10th.
 June 10th, Commencement.
 1897-98.
 Fall Term—September 9th to December 18th.

To School Officers.

The College Loan Commissioner has funds now to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioner and the State Agricultural College. Address C. R. Noe, Loan Commissioner, Leon, Kan.

GENERAL LOCAL NOTES.

Bulletin No. 60, on steer feeding, has gone to press.

Prof. Georgeson made a visit to his Missouri farm last week.

Four good stone culverts have been put into the College drives recently.

Prof. Popenoe and family are making their annual visit to the paternal home in Topeka.

A considerable number of special students are promised for the coming year.

Prof. Mason took a trip to Kansas City this week in the interest of the Horticultural Department.

W. O. Peterson will complete his course here this fall, and teach a short-term school next winter.

Mark Wheeler, Fourth-year, went to Randolph on Saturday, August 29th, to visit the Shellenbaums.

President and Mrs. Fairchild are "at home" in the house of Mr. L. R. Elliott, north of the Methodist Church.

A substantial cement floor in the basement hall of the main building is one of the improvements of the summer.

Two coats of cream-colored paint cause the kitchen to shine and make of a hitherto dismal place a cheerful room.

Lightning burned out the electric motor at the barn on Friday and struck a tree near the Horticultural Building.

Janitor McCreary is much improved in health by his stay at Kirksville, Mo., and will be on duty again this week.

Assistant Entomologist Marlatt of the Experiment Station has made some excellent photographs of moths recently.

E. M. Fairchild is an instructor in Dr. Felix Adler's School of Ethical Culture, New York, for the coming year after October 1st.

The College mail is protected by a brand new leather sack. The old one, with many repairs, has served its purpose for some ten years past.

Grace Stokes, Third-year, spent almost two months of her vacation in hospital practice in preparation for her proposed course in medicine.

F. S. Shelton, Second-year, returned on Monday last from a delightful vacation spent with relatives and friends in Michigan and Ohio. To one ten thousand miles from home, a vacation affords no visit there.

The College INDUSTRIALIST has again appeared, which is notice that in a few days 600 or more students will be daily marching toward the little city on the hill, where, in one of the very best institutions in the world, they will fit themselves for usefulness in the most remarkable period of the world's history.—*Manhattan Republic*.

The following letter will be of interest to some of our graduates:—

DEPARTMENT OF THE INTERIOR,
 OFFICE OF SUPERINTENDENT OF INDIAN SCHOOLS,
 WASHINGTON, D. C., Sept. 3rd, 1896.
 President State Agricultural College,
 Manhattan, Kansas.

Dear Sir:—At last I have succeeded in establishing the position of "Teacher of Industries," for which I want graduates of manual training and agricultural schools—persons who have a practical knowledge of farming and of the use of the carpenter's and blacksmith's tools, and who are competent to instruct small classes in ordinary manual training work, persons of good habits and plenty of common sense.

The Civil Service Commission proposes to hold an examination about the middle of September in places convenient to applicants. I write you in the hope that you will bring this fact to the notice of a number of graduates of your institution, and request them to make application at once. The salaries vary from \$720 to \$900 per annum. Quarters, light, and fuel are furnished employees, and their board in school mess rarely reaches \$2.50 per week.

Thanking you in advance for whatever assistance you may give me, I am, sincerely yours,

W. N. HAILMAN, Supt. Indian Schools.

GRADUATES AND FORMER STUDENTS.

I. A. Robertson, '96, spent Sunday with friends at Garrison.

Lillie C. Dial, '95, goes to the State Normal School this year.

T. E. Lyon, '93, will teach the Zeandale school the coming year.

Word comes from Beloit that D. L. Timbers, '94, has abandoned the life of single blessedness and

taken to himself an assistant, an advisor in his school work.

C. F. Doane, '96, will teach the coming winter at Onaga, Kansas.

C. F. Pfuetze, '93, railway postal clerk, visits at home for a few days.

J. D. Trumbull, '96, clerks in the grocery department of the Spot Cash Store.

Etta Ridenour, '96, is day operator at the Manhattan central telephone station.

I. A. Robertson, '96, and Mary Minis, Third-year, are doing clerical work in the Library.

Sam Kimble, '73, is prominent in the State Organization of the National Democratic Party.

Louise Spohr, Third-year in 1895-6, will teach the Strong school, north of Manhattan, this year.

Stella Kimball, '94, enjoyed a visit to Cape Cod and other Atlantic Coast points in July and August.

B. R. Elliott, '87, will have his mother and sister with him the coming year at San Diego, California.

G. C. Hall, '96, is at College for a few days to finish his desk in the carpenter shop. He will teach near Hoyt.

O. L. Utter, '88, and E. M. Paddleford, '89, enter Boston University this fall for a course of three years.

A. E. Ridenour, '96, studies law with Irish & Brock and works on the night shift at the central telephone station.

Bertha Spohr, who has taught in the city schools for two years, will resume her studies in College this fall.

H. E. Moore, '91, was married, August 27th, to Nellie G. McPherson. Home, 1324 Broadway, Kansas City Mo.

Fred. Elliot, '87, and Eva Knostman-Elliot, Second-year in 1888-9, spent a week pleasantly in and about Salt Lake in July.

Emma Spohr, a former student, after a year at the State Normal School, takes her old place in the Manhattan schools.

W. E. Whaley, '86, spends the vacation with his mother in Manhattan. He returns to Chicago University for another year.

L. P. Brous, '86, teacher of drawing in the Kansas City (Kan.) High School, visits College for a few days before the opening of the term.

C. C. Smith, '94, and T. M. Robertson, Fourth-year, drove to and from the Missouri Ozark region during vacation, camping out nearly all the time.

Ruth Stokes, '92, was presented with a beautiful Epworth League pin by her fellow members on her resignation as President on Sunday evening.

J. Sidney Gould, Third-year in 1887-8, with his wife visited Prof. and Mrs. Olin several days last week. Mr. Gould is pastor of the Congregational Church at Wichita.

Margaretha Horn, '93, is engaged as teacher of botany in the Detroit (Mich.) High School. She completed a post-graduate course of two years at the Michigan State University in June.

W. A. Cavanaugh, '96, has enlisted in an infantry regiment at Fort Leavenworth, expecting to win his shoulder straps in two years, as he certainly will if ability and conscientious effort count for anything.

Isaac Jones, '94, reports but meager returns from the crops under irrigation at Oakley. The pumping machinery has been idle at different times, awaiting repairs, for two months of the four and a half he has been running the place.

Mr. and Mrs. H. W. Jones went to Alma Tuesday to spend a week with their son, Humphrey W. Jones ['88] and wife, who have just buried their only child. Mrs. Jones was visiting her parents in Rice County when the little one took sick and died in a few days.—*Manhattan Republic*.

J. E. Payne, '87, Superintendent of the Rain-Belt Experiment Station at Cheyenne Wells, Col., adjunct to the State Agricultural College at Fort Collins, writes that he is trying to do something of benefit to the inhabitants of the "sunshine region," where—

"Hope springs eternal in the human breast,
 And oft' falls down with ruffled crest."

The Cheyenne Republican says: "The experiment station commences to loom up like a regular farmer. Corn and such crops, while not very large, have a good healthy look and will no doubt make more than feed. Superintendent Payne has been making experiments as to the effects of wind breaks, and the evaporation in different soils, and expects another year to make a much better showing. It is worth anyone's while to take a trip to the farm. The experiments now being made are interesting, whether you know anything about farming or not. Mr. Payne is always glad to receive visitors, and to show them over the place."

Notes from the Horticultural Department.

Two more benches in the experimental propagating houses have been remodelled. The frames were made of 2 x 4 and 2 x 6 joists, and bench-tile was used for the bottoms. By treating the wood with a good coat of crude petroleum, this makes a fairly durable bench, and one which is not very expensive.

Apple twig blight, or fire blight, has been uncommonly abundant the past season, and notwithstanding

ing that the trees were frequently examined and the affected parts cut out, it did considerable damage, especially to Cooper's Early White and a few other varieties which seem particularly susceptible to its attacks. It is the intention to go over the orchards thoroughly this fall, and carefully cut out all affected parts, as, according to the investigations of Mr. M. B. Waige of the Department of Agriculture at Washington, this is the season when efforts in this direction are most effective. A few cases left over until the following spring may be sufficient to undo all the previous work.

Some fifty photographs of grapes have been taken during the season, the intention being to complete the series which, it may be remembered, was sent by this Department to the exhibit of experiment stations at the World's Fair. This exhibit included for each of the one hundred varieties shown a herbarium specimen, a photograph of the fruit, and one of the seeds greatly enlarged, a specimen of the cane showing pith and diaphragm, and a small envelope containing seeds. It is hoped that similar specimens and photographs from the other sixty-seven varieties added since then, may be obtained, which will make a very useful means of study for any one wishing to post himself on our American grapes. The camera which is being used is a long focus Premo, 6½ x 8½, the private property of Prof. Mason, and with it the grapes are photographed at their actual size, which, of course, makes the photographs much more valuable for study.

Many of the peaches in the College orchard have this year been more or less affected by a fungus disease, *Cladosporium carpophyllum*, and some varieties, especially Family Favorite, were severely injured by it. It appears as brownish spots on the surface of the fruit, and these spots may eventually coalesce and cover nearly half the surface. The injury to the fruit consists chiefly in preventing the full development of the affected parts making the fruit inferior, but the brownish or blackish spots also hurt the appearance of the fruit, and thus injure its sale.

One hundred pounds of choice assorted grapes from the experimental vineyard were shipped this week to J. S. Smithson of Anthony, Kans., a dealer in fancy fruit. The order was the result of his seeing a basket of grapes which W. L. Hall had sent to the home folks. Any one who has seen these grapes will understand his being attracted by them.

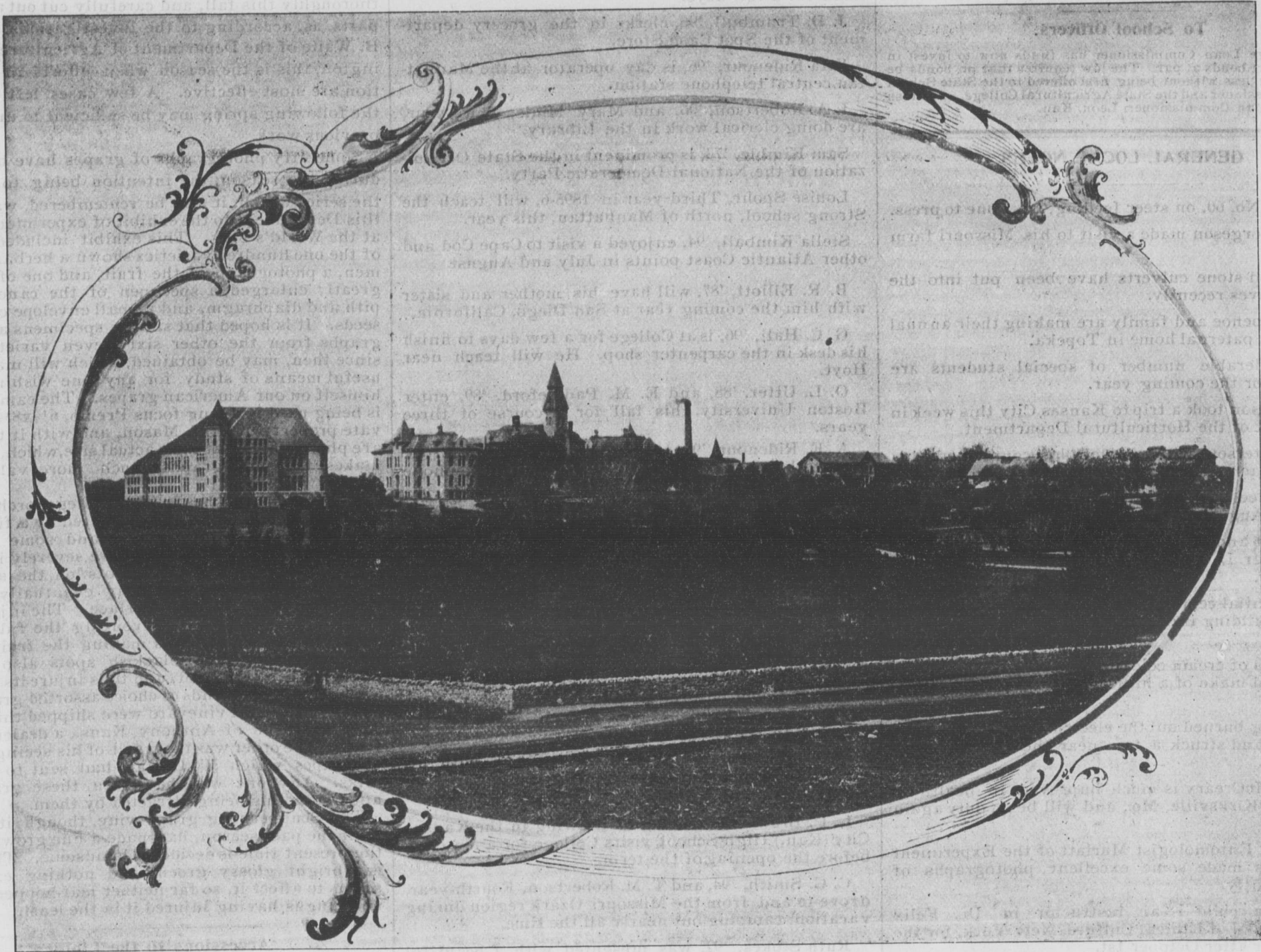
The Scuppernon grape vine, though it bore no fruit the past season, has made a fine growth, and at the present time is decidedly handsome. The foliage is a bright glossy green, and nothing except cold seems to affect it, so far neither leaf-hoppers, drouth, nor fungus having injured it in the least.

Accessions to the Library.

The following books have been added to the Library since June 1st:—

Socialism New and Old, Graham.
 English Social Movements, Woods.
 The Great Debate, Horr and Harvey.
 The Factory System and the Factory Acts, Cooke and Taylor.
 The Case Against Bimetallism, Giffin.
 French and German Socialism in Modern Times, Ely.
 The Science of Money, Del Mar.
 North American Shore Birds, Elliot.
 Public Debt: An Essay in the Science of Finance, Adams.
 The History of Trade Unionism, Webb.
 Wealth Against Commonwealth, Lloyd.
 Experiment Station Record, Vol. 6.
 Report of New Hampshire College of Agriculture and Mechanic Arts, 1894.
 U. S. Coast and Geodetic Survey, pt. 2, 1894.
 Official Register of the United States P. O. Department, 1895.
 Congressional Record, Vol. 28, parts 1, 2, and 3.
 Die Grapische Statistik, Culman.
 Graphischen Statistik, Culman.
 Electricity and Magnetism, Guillemin.
 Biography and History of the Class of '95, K. S. A. C.
 Proportional Representation, Commons.
 Life of Gen. Jas. H. Lane, Speer.
 The Whence and the Whither of Man, Tyler.
 Monism as Connecting Religion and Science, Haeckel.
 Philosophy of Mind, Ladd.
 The Larger Christ, Herron.
 Manual of Operative Veterinary Surgery, Liautard.
 Social Problems, George.
 The New Era, Strong.
 "The Jukes," Dugdale.
 Democracy and Liberty, 2 Vols.
 Strawberry Culture, Fuller.
 Introduction to Political Science, Seeley.
 The French War and the Revolution, Sloane.
 The Elements of Ethics, Hyslop.
 Mushrooms: How to Grow Them; Falconer.
 Fruit Culture, Strong.
 Lameness of Horses, Liautard.
 Our Native Ferns and Their Allies, Underwood.
 The American-Fruit Book, Cole.
 The American Shepherd, Morrell.
 British Cattle.
 British Husbandry, Vol. 2.
 The Gentleman Farmer, Kames.
 Sheep, Swine, and Poultry, Jennings.
 Husbandry and Rural Affairs, Bordley.
 Sheep: Their Management, etc.
 Astronomical Myths, Blake.
 The Romance of Astronomy.
 Poisons: Their Effects and Detection, Blyth.
 Essays in Historical Chemistry, Thorpe.

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THIS MARVELOUS AGE.

BY PROF. OSCAR E. OLIN.

IT is already a common-place to speak of the wonders of the last quarter of a century. We have seen marvel succeed marvel till we hardly feel surprise any longer, and the most astounding discovery is worth but a single insertion in the daily paper. Each year adds to our triumphs and increases our expectancy of the future. This does seem indeed to be the golden age of invention.

Since the opening of our last college year, an unusual advance has been made in conquering our surroundings. Electricity has been applied in new and powerful ways. A great advance has been made toward converting coal directly into electricity. Roentgen's discovery of a new radiant energy enables us to see through cloth and paper and wood and human flesh, and opens to the scientist unlooked for possibilities. The problem of transmitting light by electricity—of "seeing through a wire"—has been brought to the last stage of solution by two scientists of different countries, and almost any day it may be announced that we can see, as well as hear, a thousand miles away. The year has also seen another triumph of photography almost as great as the Roentgen rays—a practical method of photographing objects in their natural colors.

From the chemical laboratory has come the news that the dream of the alchemist has been fulfilled. Dr. S. H. Emmons of New York, a noted scientist, whose work has heretofore been eminently practical, announces that he has been able without any magic whatever to transform silver into genuine gold—an action not foreseen by many chemists. Professor Langley of the Smithsonian Institute has proved the practicability of air navigation. President Jordan tells in a late journal of a successful attempt to photograph, through the eye, the product of the imagination, thus showing the substantial nature of human thought. All these have been brought about within a year, together with many other things that would have startled us fifty years ago, but of which we take no notice now.

Looking at the far-reaching results of even the slightest of these achievements, one can but wonder what the first years of the twentieth century will be. And why is it that all these great things are coming so close together and we are so favored above other times and places? It may be answered that many of these discoveries are so related that one leads on to another; and the first may open a whole series. And then, for a hundred years, scientific thought has been busy studying principles and searching out laws and gaining strength for application, till now the century plant of science has blossomed into a wondrous wealth of beauty and fragrance. There have been such times before, only the period of growth was far longer and the results less satisfying. And there will be such times in the future, but with increasing frequency and more brilliant terminations.

Why is it that, with all our wonderful material achievements, the world is still so restless and ill at ease? Partly, I think, because of this very advance. We have become sensational, and discontented with ordinary life. We want great and greater things to be happening all the time. When men about us are making their hundred thousand, or even million, in a few years by some shrewd move or some lucky turn of the market, others are not satisfied with the slow gains of legitimate business. When an association of men can by a simple vote put millions of dollars in their pockets from the price of coal, mining at ordinary profits loses its interest. Every capitalist must be a "Napoleon of finance" and every workman a "captain of industry" till unrest is created in all lines of life.

Another cause is the lack of adjustment. We have in the last few years very greatly changed our ways of doing things. With every new machine or process, we are striving to get the maximum of product with the minimum of effort; and in so doing we are throwing more men out of employment in the old lines than are provided for in the new. This has been going on for years. Some of these changes affect many lines of industry, and society has never yet set itself earnestly to the problem of adjustment. Giving "tariff" and "silver" their due weight, there still remains much that is due to this cause.

Still another cause is the misdirection of energy. A few days ago at the government proving grounds an armor that had withstood all attacks was penetrated by a new projectile. A ball weighing a

hundred pounds was given such force that it passed through ten inches of solid steel, twelve inches of solid oak back of that, three thin steel plates after that, and then buried itself eight feet in the ground. The makers of these illustrate well this misdirected energy. One set of men are making impenetrable armor; another, irresistible projectiles, and each is working simply to nullify the efforts of the other. The whole preparation for war among civilized nations is of this order. To this must be added all the energy spent on useless or harmful things. It seems absurd that society should license a hundred men to spread death and destruction as far as they could reach, and then detail a thousand men to repair as far as possible the damage done. Yet society misdirects its energy in just such ways; and the standing wonder of coming centuries will be how our civilization in the light of this marvelous age could so miss the basic principles of common sense.

There is now enough of gathered wealth and power and control of nature's forces to redeem the world from all its physical ills, if only they could be wisely directed. Turn all the energies of civilization into any useful channel, and no work would be stupendous; everything would become easy. "Knowledge comes, but wisdom lingers." The earth is one vast store-house of knowledge and strength; and the world with all its gathered wealth of power is ready to start on some great, new cycle. We wait only the coming of wisdom.

BENEFICIAL INSECTS.

BY BERTHA S. KIMBALL, '90.

IF we examined faithfully the list of those classes of people who are considered enemies of the human race, doubtless we should find many among them who directly or indirectly exercise an influence not harmful, but quite the opposite. We are apt to judge classes from our acquaintance with a few individuals, and so build up a spirit of intolerance towards others; and this is even in a greater degree true of the lower classes of the animal kingdom. There seems to be toward the snake either as the poets declare "an inborn loathing," or, what is much more probable, an educated prejudice towards one of the most harmless of animals, as we find them ordinarily.

The brilliant dragon fly, with colors more beautiful in their metallic brightness than the painter's brush can picture; the bee, typical in his busy life of all that indicates industry; the frail butterfly with its jeweled wings gauzy and beautiful; the common everyday black beetle, fierce or frightened as the case happens to be freedom or captivity, all these and a myriad others injurious, useful, ugly, or beautiful, we are accustomed to hear classed together as "bugs" with the usual expressive shudder and shrug of the shoulders.

All "bugs" are expressly created to be killed, is the maxim we live up to. Poor insects, how many innocent lives are lost, how many murders are committed, because of race color or previous condition of insect life; for even the worm beneath our feet we crush purposely, fearing that at some future time he may become a bug. And so day after day hundreds of our insect friends are destroyed. So few are their numbers in comparison with the host of injurious ones that invade forest, field, orchard, and garden against whose attacks we struggle valiantly, to retire usually as the vanished ones.

Battling with us, figuratively, for their own bread and butter, literally for the fat and juicy worm, but helping greatly though working selfishly, are the beautiful lady-birds, or Coccinellids, if we give them their proper name, crawling about over the leaves of all sorts of plants seeking other insects for food. One of these Coccinellids was imported into California from Australia to aid in the destruction of the orange scale, and which afterward proved an important factor in this work. Numerous experiments in this line have been tried with greater or less success, but to Mother Goose more than to any entomologist are most people indebted for the knowledge of the existence of such a small insect, for we all heard first of the lady-bird in Mother Goose's Melodies.

Many other interesting forms might be named under the head of insects which devour those of injurious habits. The soldier-bugs, to which belongs the wicked cone-nose, do an immense amount of good by destroying other insects; and so long as they limit their aspirations to this particular line we are con-

tented to class them as beneficial insects, but when, as a few of them occasionally do, they evince a blood-thirsty desire to exterminate the human race, we throw aside all charity and, because of a few criminals, class them all as injurious, when in reality they are quite as useful as the lady-bird.

Few insects create greater consternation than the preying mantis, and indeed few are calculated to; yet it is harmless and beneficial, and does not deserve the ill treatment it invariably receives when its search for other insects leads it the way of its own enemies. A friend of mine living in Topeka one day discovered one of these odd creatures in the house, and after carefully carrying it out of doors by the aid of a long stick, it was transferred to a small box and sent to Manhattan as a rare and perhaps dangerous specimen. And they are uncanny looking creatures, as they stand solemnly saying their prayers, but their powerful jaws do wonderful execution to any insect that strays within reach.

The active tiger beetle—fitly named, for it must be as great a terror in the insect world as the tiger can be to other animals—ought never to be wilfully destroyed. It is among the earliest of spring beetles well known to everyone.

Many others in this class might be named that are almost as useful; but, passing on to another, we find the scavengers, the street sweepers of the insect world, the carrion and sexton beetles and all those which feed upon decaying animal or vegetable matter, each playing well his part in the drama of insect life. It has been said that the common housefly is useful as a scavenger about the house, but we are more than willing to dispense with his valuable services for the sake of losing his company.

Another large class are busy helping to destroy the weeds, for almost every plant has one or more insect enemies, and so long as they confine their depredations to weeds alone, we must call them beneficial. Occasionally an insect that has really gained an enviable reputation as a friend so far forgets himself as to transfer his affections from weeds to fruit or grain, when, forgetting all his good qualities, we immediately resort to any means for his destruction.

Many insects contribute valuable articles for manufacture or commerce. We need no other reminder of the bee than the delicious honey which finds its way to our tables. Long may he prosper in his industry, not only adding a luxury to our tables, but aiding many in earning a living. The silkworm industry is too well known to need description. We know that thousands of people depend upon the efforts of the silkworm for a livelihood, and that anything which endangers the lives of these small creatures also seriously affects the welfare of a multitude of human beings.

The cochineal of commerce is also an insect product well known to all. Much of the red candies and the beautiful pink frostings of our cakes owe their color to the dried bodies of the cochineal insects, which are gathered from the trees where this scale insect is found, and after being dried upon hot plates or by hot water or other means, they are ready for market. It is a curious fact that even this product is subject to adulteration, insects of a worthless kind grown in the West Indies being added to the others.

Another valuable product which we owe to the insect world we find in shellac. This also is produced by a scale insect, the product being an exudation from the scale, while it is fixed permanently to the twig. These twigs are broken off and in this condition the product is called stick lac. After being triturated with water, the exudations are separated from the twig and in this condition it is called seed lac. After being melted and strained through cotton cloth it is poured over leaves and sticks, where it cools in thin, shell-like pieces and is then in the condition in which we receive it, and is called shellac.

Other instances might be given of the usefulness of insects, but the subject is too broad a one for so short a paper. Yet I must mention the class of insects which are parasitic upon others; for the good they do can hardly be estimated. Almost every insect is subject to attacks from one or more species of this army of countless parasites, and many specimens have been tried by which, after finding the various parasites which destroy certain injurious insects, efforts have been made to increase the number of parasites and so aid in the destruction of their hosts. A great field for study and experiment lies open in this line to the entomologist who realizes its importance. Upon his shoulders also rests largely the responsibility of educating, and while much is being made known by him of insect enemies and how to destroy them, let him not forget to say a word for our insect friends and how to preserve them.

Cheerful Labor.

The hardest task is made easy when it can be done cheerfully. The willing worker thinks only of the labor in hand, and finds pleasure in doing it. The unwilling worker is dissatisfied, and renders himself unhappy by vain regrets. Although these are the merest truisms known of all men, the knowledge is not always turned to useful account. If the labor we all have to perform may be made either a source of pleasure or of discomfort, we should surely take some pains to learn how to work cheerfully. That is one of the reasons why care should be taken in choosing an occupation. Unless we are interested in our work we cannot do it well, nor can we go to it day after day with a cheerful disposition. Nor can we work cheerfully, even at a congenial occupation, unless we have become habituated to labor regularly. Much of the happiness or unhappiness of our lives depends upon the habits we form when we are young, and happiness comes not to those who pursue pleasure, but to those who learn to carry within themselves a cheerful and contented disposition. The pleasure-seeker must have change and excitement—he cannot content himself with a dull routine of work; but the great majority are required by force of circumstances to labor daily, and, therefore, it is the part of wisdom to learn to work cheerfully and to seek pleasure in labor. There are other pleasures to be found in life, but they will be appreciated more keenly if they have been earned. To realize this it is only necessary to note the zest with which the cheerful worker enters upon a brief holiday, and the languid air of his fellow who on the same occasion seeks an outing, but to whom the holiday has no significance because his indulgent parents permit him to live in idleness.

The well-to-do often envy their poorer neighbors because of the keen appetites of those who work hard and have few luxuries; they have so much reason to envy the cheerful worker to whom a holiday is a great event. The hours that most people can give to so-called pleasure are few in number when compared to the hours they must give to work, and their happiness will be greatly increased if they can learn to labor cheerfully. This is largely a matter of mental habit; and the young should start right in forming habits. The first thing to learn is promptness in beginning a task. The more one stops to consider about going to work the more distasteful the idea becomes. There is little trouble about getting out of bed in the morning when one is called, provided the summons is instantly obeyed. But it becomes more and more difficult to get up the longer one lies in bed thinking about it. So also there is trouble about going to work of any kind if one starts at the appointed time, instead of lingering and making a vain effort to postpone the beginning of the day's labor. Good having been formed in the matter of starting, activity and earnestness in doing the work will shut out idle thoughts and enable one to do the appointed task cheerfully. Idleness is the parent of many vagrant thoughts; the cheerful worker becomes so intent upon his task that he thinks of nothing else. Cheerful labor has in this a good moral influence, and every one should therefore endeavor to acquire such habits as will make work a source of pleasure.—*Baltimore Sun*.

The Benefits of Horticulture.

When I make the statement that horticulture has been greatly beneficial to this and other countries, I feel certain that what I say is true, and that all thinking people will bear me out in the assertion. The benefit which this "science" has spread forth is very visible and is easily observed. There is no mystery about it, and the observer does not need a strong eye glass or a certain ground lens to see at least enough of this benefit to be convinced that there are great benefits derived from this interesting husbandry. I do not mean to say by this that the "science" of horticulture is easily mastered, for it is not. It is not unlike other sciences in this respect, requiring continuous study, close observation and application and extended practice to reach the goal, and even then there is much to learn and the subject seems inexhaustible.

But I do mean to say that many of the benefits which this science has given us are very plainly seen and enjoyed throughout the land. One needs but to reflect for a moment upon the subject to see the fact or to ask the question. Do beautiful trees, luscious fruits, and lovely flowers benefit any one or add to the value and attractiveness of city, suburb or farm? What must be our answer as we think of these things?

Have we ever been protected by majestic evergreens from winter's chilly blast? Have we not been kept warm by fuel made from trees? And how about many of our houses and other buildings? Have not trees entered into their structure? They have had something to do with them. Why is it that your home is so pleasant? What makes our streets and avenues so picturesque, our parks and lawns so attractive? Why is it so many people plant trees, shrubs, and flowers? The reasons are so plain that we need not mention them.

We heard a gentleman once remark that he would not sell the group of evergreens in his front yard for several hundred dollars. They were a continual pleasure to him. If evergreens do not beautify and add to the home-likeness of a place we fail to see what does. We believe they were created evergreen for a purpose. They obviate much of the barrenness of winter and lend cheer to any home. It has been said that we do not miss the water until the well goes

dry. We do not fully appreciate our blessings until we lose them. If we should be deprived of our horticultural blessings we would indeed miss them. Sweep from the face of the earth her beautiful trees, fruits, and flowers, and she would be shorn of her greatest beauty.—*John M. Wise, Superintendent Floral Department Northern Illinois Fair, Freeport, in Western Rural*.

Moral Lessons.

Objection has been made to the teaching of morality by precept, and particularly to lessons recommending right conduct because of the rewards to be obtained. There is ground for the objection if the teacher means, as the critic assumes, that the outward exhibition of virtue is all that is required, or if he holds out as the only reason for doing right that such conduct may or will be rewarded. But there are, in fact, no such teachers. When one recommends humility to the overproud, it is real humility that is recommended, not a mere pretense; and those who point out the benefits arising from goodness do not do so to incite the bearer to right living by assurance of reward, but as an argument for right living based upon its results. As a matter of fact, the rewards of virtue are very often not of this world; the good as a general rule have a stony road to follow instead of "the primrose path of dalliance," and the only reward that can be counted upon in this world is a satisfied conscience. No one accuses the doctor of teaching unduly the doctrine of rewards and punishments because he tells his patient that he may eat certain articles with impunity, but that if he indulges in certain other kinds of food his health will be impaired.

These possible or probable results are natural sequences of impaired digestion, and the patient, while obeying the doctor's instruction, does not think of the promised return of health as a reward nor of further ailment as a punishment. The moral preceptor in like manner points out to his pupil that certain lines of conduct and some habits are pernicious, and that other conduct and habits, being right and good, promote the moral welfare. If the pupil should accept this lesson in the sense in which it is taught, he would not think of the rewards to be obtained or the punishments to be avoided, but would do good because it was good. Hamlet, in a moment of scorn, adjudged his mother to assume a virtue if she had it not, but this is not moral teaching nor was it intended as such. But even such teaching might be defended, so much is man the creature of habit. Except for the hypocrisy involved, even the assumption of virtue would be one step towards its possession. But moral teachers do not really concern themselves with outward signs or simulations of the virtues they recommend. What they want their pupils to cultivate is real virtue. When they recommend honesty, humility, firmness, frankness, and the other qualities that help to make the perfect character, they mean these things in the heart, not a pretense of them exhibited only in conduct and not sincerely felt.—*Baltimore Sun*.

Strength of Man.

The muscles, in common with all the other organs of the body, have their stages of development and decline; our physical strength increases up to a certain age and then decreases. Tests of the strength of several thousand people have been made by means of a dynamometer (strength measurer) and the following, says the *Springfield Union*, are given as the average figures for the white race:—

The "lifting power" of a youth of seventeen years is 280 pounds; in his twentieth year this increases to 320 pounds, and in the thirtieth and thirty-first year it reaches its height—356 pounds. At the end of the thirty-first year the strength begins to decline, very slowly at first.

By the fortieth year it has decreased eight pounds and this diminution continues at a slightly increasing rate until the fiftieth year is reached, when the figure is 330 pounds.

After this period the strength falls more and more rapidly until the weakness of old age is reached. It is not possible to give statistics of the decline of strength after the fiftieth year, as it varies to a large extent in different individuals.

The "Know All About It" Farmer.

The contrast of the class of farmers who "know all about it" and the intelligent reading, thinking men is becoming more and more apparent as we progress. The "know it all" farmers do not read the stock and agricultural papers, while the progressive farmer reads a number of the leading papers with profit. He never considers that he knows more than any of these writers, but constantly learns from the experience of others. Prof. Van Slyke, of the New York Experiment Station, says: "In the present state of our knowledge, or rather lack of knowledge, most statements must be made as opinions rather than established facts." Never before have agriculture, stock breeding and feeding made such progress, but the farmers who do not read get little benefit of it until we have passed on to other improvements. There are thousands of farmers still breeding scrub stock and feeding the old way, who complain at the prices, the times and the government, while their neighbors who read, adopt the improved breeds of stock, and get double the price in the same market. Still the non-reading farmer will not follow these experiment stations and fine stock cranks, for he "knows it all."—*Western Agriculturist*.

Calendar.

1896-97.
Fall Term—September 10th to December 19th.
Winter Term—January 5th to March 27th.
Spring Term—March 30th to June 10th.
June 10th, Commencement.
1897-98.
Fall Term—September 9th to December 18th.

To School Officers.

The College Loan Commissioner has funds now to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioner and the State Agricultural College. Address C. R. Noe, Loan Commissioner, Leon, Kan.

GENERAL LOCAL NOTES.

Dr. Mayo rides in a new buggy.

The Faculty has abolished public exercises on examination days.

President Fairchild addresses an educational convention at Marion, tomorrow.

The little guide book issued by the College Christian Associations is helpful to new and old students alike.

Mrs. Kedzie is the owner of a handsome new surrey to which Prof. Mason's horse supplies the motive power.

Foreman Harrold has moved into his house in the Parker Block, Manhattan avenue, purchased last spring.

The resident members of '97 entertained the Class on Tuesday evening at the home of one of the number, Ollie Long.

Janitor McCreary resumes his duties in good health, and thinks the osteopathic treatment has effected a cure in his case.

Hubert, Prof. Popenoe's ten-year-old son, suffers a broken forearm as the result of a fall from a horse while visiting near Topeka.

The cold wave of Friday night, following a rain of two days, lowered the temperature to 44°, and made welcome the first heat from the radiators on Saturday.

Messrs. Frank Wossenberg, J. E. Andrews, Chas. McAtee, and Henry and Frank Shultz, of Marysville, called at the College this morning on their return from Oklahoma.

The Students' Silver Club has been organized, and has a membership of about 100. The officers are W. L. Hall, President; H. M. Thomas, Vice-President, V. Maelzer, Secretary.

Mrs. Brown mourns the loss of her father, Mr. Benjamin W. Hoyt, who died at her home, September 11th, at the age of 79 years. The body was taken to Union City, Mich., for burial.

"No wheels allowed on College walks" is the notice that confronts passers by at either end of the long foot path. Riders of bicycles, wheelers of baby carriages, and persons with rotary think-pans will please take notice.

The newspapers announce that Capt. E. B. Bolton, Professor of Military Science and Tactics at this College from 1890 to 1894, until recently stationed in Texas, has been ordered to Fort Leavenworth and promoted to Major.

Prof. Walters, Mr. Baxter, and Miss Kimball read papers before the meeting of the Manhattan Horticultural Society on Thursday. Miss Kimball's paper finds a place in this issue of the INDUSTRIALIST, and the other two are promised.

The attendance is larger by eighty than ever before. The enrollment by classes is as follows: Preparatory, 68; First-year, 206; Second-year, 128; Third-year, 74; Fourth-year, 62; Post-graduate, 28. Total, 566. The attendance will easily reach 700 by the end of the year.

The Drawing Department has gained possession of and moved the old barn steam engine to a cabinet prepared for the purpose, where it will serve as a model for the Fourth-year students in mechanical drawing. It is a valuable addition to the equipment of the department.

The K. S. A. C. McKinley Club of students was organized on Tuesday with a membership of 120. R. W. Bishoff is President; T. M. Robertson, Vice-President; O. E. Farrar, Secretary; G. G. Menke, Treasurer; Executive Committee—S. B. Newell, C. B. Ingman, P. Fox, R. H. Brown, R. E. Worden.

Through the favor of Mr. Cyrus H. McCormick, son of the inventor of the reaping machine, the Library has received a volume entitled "Inventors," by P. G. Hubert, Jr., in the Men of Achievement Series of Charles Scribner's Sons. The son pays a delightful tribute to his father's greatness by distributing his praises in such a pleasant way.

The ladies of the Christian Church have undertaken to solve the lecture course problem during the coming winter to the satisfaction of everybody. The course provided includes Will Carleton, Col. Copeland, the Merriken Star Entertainers, Dr. A. A. Willits, and Maro, the great magician. Secy. Graham has charge of the course, and meets with such encouragement as guarantees a successful series of entertainments.

The three hundred students assigned to drill make four companies necessary, officered as follows: Company A—M. Wheeler, Capt., A. L. Whipple, First Lieutenant; W. A. McCullough, Second Lieut.; Sergeants, Correll, Sanderson, Tulloss, Blair, M. C. Adams. Company B—E. Emrick, Captain; S. R. Nichols, First Lieutenant; E. B. Patten, Second Lieutenant; Sergeants, Allison, Foster, Wheeler,

Shelton, Haney. Company C—R. W. Bishoff, Capt.; F. Zimmerman, First Lieutenant; E. Butterfield, Second Lieutenant; Sergeants, McDowell, King, Mitchell, Symms, Blachly. Company D—H. M. Thomas, Captain; W. Anderson, First Lieutenant; G. F. Farley, Second Lieutenant; Sergeants, Bower, Hoffman, E. C. Adams, Lee, Harvey.

The election for student editors was held on Saturday afternoon. Fifteen members of the Fourth-year Class were voted for, resulting in the choice of W. B. Chase, Emma Finley, and E. Shellenbaum, as follows: Cora Atwell, 95; W. B. Chase, 193; F. E. Cheadle, 66; F. V. Dial, 90; Emma Finley, 158; Myrtle Hood, 91; Winifred Houghton, 126; V. Maelzer, 58; S. B. Newell, 61; J. B. Norton, 121; W. J. Rhodes, 59; E. Shellenbaum, 192; C. W. Shull, 25; Phoebe Smith, 37; J. E. Trembly, 67. Illegal ballots, 3.

To the first division of the Third-year Class belongs the distinction of giving the opening Chapel entertainment for the College year. The program follows: Piano duet, LaBaladine (Lysberg), Misses Rhodes and Stokes; "The Visit of the Chinese Viceroy," E. S. Adams; "Each for All and All for Each," J. W. Adams; "Self-Reliance," D. Akin; "The Unknown Speaker," T. W. Allison; vocal solo, C. Jeanette Perry; "The Gladiator," W. Anderson; "The Two Roads," Jessie Bayless; "The Issue," J. H. Blachly; "The Uses of History," J. H. Bower.

GRADUATES AND FORMER STUDENTS

N. Will, special student in 1894-5, is at the State University.

A. H. Hepler, student in 1890-91, is practicing medicine in Kansas City.

A. B. Newell, student in 1895-6, attends Ottawa (Baptist) University this year.

Maude E. Knickerbocker, '93, teaches this year in the graded schools of Terraville, South Dakota.

L. P. Brous, '86, writes from Kansas City, Kansas, in behalf of a friend who wants a State diploma.

H. L. Pellet, '93, is studying osteopathy, the new science of healing, at the Kirksville (Mo.) Institute.

E. C. Thayer, '91, writes from Pawnee, Ok., where he teaches in the Indian school, of a desire to better his condition.

Elizabeth Edwards, '92, and Florence Beverly, Second-year in 1889-90, spent the summer abroad, the former visiting in Wales and the latter in England.

Bessie Hall, Second-year, was a delegate from Manhattan Chapter, Daughters of the King, to a convention of the order at Kansas City, September 14th to 17th.

C. L. Marlatt, '84, and sister, Abbie L., '88, were at the meeting of the American Association for the Advancement of Science at Buffalo, making the journey by water from New York.

B. A. Knox, Second-year in 1890-91, was bitten recently by a copper-head snake, and narrowly escaped death as a result, it being almost two hours before medical treatment could be had. He is recovering, though still confined to his room.

H. R. Phillips, Second-year in 1890-91, a farmer near Diamond Springs, says in a letter: "I find the knowledge I gained in the shops and gardens, as well as in the classroom, during the two years I attended your institution, to be of much practical value to me."

Arnold Emch, special student two years ago, now Assistant Professor in Mathematics at the State University, favors the College with a copy of "Projective Groups of Perspective Collineations in the Plane," that being his thesis on which he last June received the degree of Doctor of Philosophy from the University.

Hugo Halstead, ['95], of Leonardville, was in the city Tuesday. He is in receipt of a telegram from the naval department at Annapolis, Maryland, to report there for examination to enter the U. S. navy. Mr. Halstead was appointed an alternate for Chris. Kinney by Congressman Calderhead. Mr. Kinney failed to pass a satisfactory examination and Mr. Halstead was telegraphed for.—*Manhattan Nationalist*. Mr. Halstead decides not to go, however.

C. H. Thompson, '93, writes from the University of Missouri at Columbia: "Mr. Nathaniel Ogden Booth, Second-year in 1888, graduated this last June at the Missouri State University, and was chosen Assistant in Horticulture. The past week he went to Cornell for a three months course in his profession, from which he will return to take up his duties here. Mr. Booth is a cousin of Lieut. Todd, formerly of the College, and was raised in Manhattan. He is a very strong man, and highly respected by all who know him. He takes great pleasure in the memories of the year he spent at the Kansas State Agricultural College. It is always a pleasure to meet the boys that once climbed the same hill that I did."

CLASS OF '96.

E. B. Coulson is teaching in Harper County.

Clara Newell clerks in the Spot Cash Store.

Hattie Paddleford teaches this winter at Perry, Ok.

Maggie Carleton stays with her mother at home.

Geo. Finley is teaching his first school in Riley Co.

C. E. Pincomb spends his time on the home farm.

C. W. Lyman is to be found in Coons' Shoe Store.

E. H. Webster visited College Wednesday morning. He goes to Chicago at once to take a place in the shops

of the Aeromoter Company, where G. W. Wildin, '92 is department foreman.

Marian Jones teaches the Blazing school in Riley Co.

H. N. Rhodes teaches school this winter in Riley Co.

Elya Palmer-Thackrey is at home in Greencastle, Ind.

Inez Palmer-Barrows is at home in Washington, Kans.

L. W. Hayes is working on a farm near Blue Rapids.

Minnie Pincomb finds pleasant employment at home.

Miriam Swingle takes a Post Graduate course at College.

Fannie Parkinson teaches the home school at Pomona, Kans.

H. G. Johnson contemplates a year at home spent on his father's farm.

Joanna Freeman is enjoying improved health at her home near Riley.

Etta Ridenour is central girl at the Manhattan telephone exchange.

J. D. Trumbull clerks in the grocery department in the Spot Cash Store.

A. L. Peter is at present in Colorado, where he went the latter part of August.

T. L. Jones finds employment as an assistant in the Topeka Insane Asylum.

E. C. Joss decides to spend a few months on his mother's farm at Fairview.

Sadie Stingley tries the Cleveland school near Keats as her first field of work.

F. E. Uhl visits College friends for a few days before opening his school near Gardner, Johnson County.

The *American Agriculturist* prints, in a recent number, the portrait of Grace Secrest in its "Farmers' Daughters" series.

May Bowen is enjoying a new bicycle, is studying Latin and German under a private teacher, and taking literature as a special study at College.

C. S. Evans writes from Fort Snelling, Minn., where he is on the army hospital corps, of pleasant surroundings—more so than at Fort Riley, where he was stationed for three months after enlistment.

J. B. S. Norton writes from St. Louis that he is well settled and enjoying his work at the Missouri Botanical Gardens in St. Louis, with every advantage in study and research in botanical lines he could wish for.

COLLEGE ORGANIZATIONS.

September 12th.

Promptly at eight o'clock the Webster Society was called to order by Vice-President, R. W. Bishoff. Roll call showed a good attendance of loyal Websters. Under the order of initiation of candidates, A. E. Welch and H. Webster were admitted to membership. As it was the evening for election of officers, the order of debate was passed. Frank Shelton delivered a humorous declamation, a "Parody on Maud Muller." "The Life of a Tramp" was the subject of L. P. Keeler's essay, which was well written and delivered. S. Dolby, in a "Welcome Address," welcomed both old and new students. The Webster Quartette entertained the Society with a selection. The first number of the twentieth volume of the Reporter was presented by J. B. Norton, with the motto, "Come with us, and we will do thee good." Under new business, the following officers were elected: President, W. B. Chase; Vice-President, J. B. Norton; Recording Secretary, F. Zimmerman; Treasurer, C. Masters; Critic, R. J. Peck; Marshal, C. D. Lechner; Board of Directors—R. W. Bishoff, S. B. Newell, R. B. Mitchell, C. C. Jackson, P. K. Symms. Adjournment 10:30.

September 12th.

The opening of the new College year has brought back a goodly number of Alpha Betas, as was shown by the attendance at this, the first session. Vice-President Clara Wilson called the Society to order, after which R. W. Clothier led in devotion. Misses Alice Wolfley and Cassie Dille were then elected and initiated. Following this was a short address by G. D. Hulett, in which he exhorted us, as Alpha Betas, to be useful and loyal members, and in behalf of the Society he extended a cordial welcome to the new friends who have come among us. Miss Channell then favored the Society with a piano solo, after which Miss Blachly delivered an interesting declamation. The most important news items of the past three months were presented by Miss Reed. Misses Cottrell and Gilkerson and R. W. Clothier and E. Shellenbaum next rendered a vocal quartet. The question, "Should the K. A. C. have a Business Course, in connection with its present Course?" was affirmed by Miss Phillbrook, who argued that such a course would help the College by increasing the attendance and would help every graduate of the College, no matter what his occupation. Everyone needs a good business education, the farmer more than many others. Mr. Shellenbaum on the negative, argued that as this is a strictly agricultural col-

lege, a business course has no place in its curriculum. The practice one has in book-keeping at this college is sufficient for one who expects to become a farmer. After a vocal solo by Mr. Clothier, Miss Manchester presented an excellent number of the Gleaner. Immediately after recess Mr. Clothier rendered a violin solo. This was followed by election of officers, who are as follows: President, C. W. Shull; Vice-President, G. Dille; Recording Secretary, G. D. Hulet; Corresponding Secretary, Elsie Waters; Treasurer, Kate Zimmerman; Critic, Alice Shofe; Marshal, Anna Streeter; Members of Board of Directors, Misses Channell and Pierce, and Mr. Rummold. After the usual business session, the Society adjourned. G. D.

September 12th.

The Hamilton Society Hall was well filled when Vice-President, W. L. Hall, called the meeting to order. Roll call made several old familiar faces conspicuous by their absence, but the multitude of new faces gave promise of lively society work for the ensuing year. S. J. Adams led in devotion. After transacting some business, the Society proceeded to the election of officers, which seemed to be the most important part of the session. Many stirring nominating speeches were made. W. L. Hall was unanimously chosen for president. The other offices were nearly all closely contested. C. B. Ingman was elected Vice-President. The remaining officers are as follows: Recording Secretary, A. D. Whipple; Corresponding Secretary, Guy F. Farley; Treasurer, B. F. Durant; Critic, H. M. Thomas; Marshal, T. E. Thomas; Board of Directors, O. E. Noble, Chairman, H. McCaslin, Secretary, G. G. Menke, Wm. Poole, and Wm. Anderson. Under the head of propositions for membership, the names of Mr. Rhodes and F. F. Howe were proposed. After disposing of some unfinished business, including the adoption of our revised constitution in neat pamphlet form, the Society indulged in some extemporaneous speaking and then adjourned. V. M.

The College Y. M. C. A. held its first service of the College year, Sunday afternoon, September 13th, at the M. E. Church. Many faces which we were accustomed to see with us were missing, but their places were filled by a goodly number of new students. The meeting was characterized by the great earnestness of the members, who expressed their determination to do hard work this year for Christ among their fellow students. We cannot emphasize too highly the importance of the Association's work to the College student. He comes here for mental discipline, but in its attainment he should not neglect his moral development. Classes for the study of the Bible will soon be formed, to meet during the week, and every young man in College is asked to become a member of these classes, and also to attend our Sunday afternoon meetings, which are held in the Methodist Church at three o'clock. J. M. P.

Accessions to the Library.

The following books have been added to the Library since Sept. 5th:

Scientific Foundations of Analytical Chemistry, Ostwald.
William Morris: Poet, Artist, Socialist, Lee.
Gravitation, Airy.
Florida Fruits, and how to Raise Them, Harcourt.
Pain, Pleasure, and Aesthetics, Marshall.
Elementary Properties of the Elliptic Functions, Dixon.
The Psychology of Number, Dewey.
The Story of Our Post Office, Cushing.
Practical Studies in Fermentation, Hansen.
Gillespie's Treatise on Surveying, 1896, Staley.
Mental Faculty, Warner.
The Planet Earth, Gregory.
The Lives and Graves of Our Presidents, Weaver.
Selections Illustrating Economic History since 1863, Rand.
The Communism of John Ruskin, Bliss.
Socialism, Mill.
Problems of Poverty, Hobson.
Index, Kemensis, Fasc. IV, Psidium Zyzgium, Hooker and Jackson.
College Botany, Bastin.
International American Conference, 4 Vols.
The Winning of the West, Vols. 3 and 4, Roosevelt.
Statistics and Sociology, Mayb-Smith.
Elementary Mechanism, Woods and Strahl.
Theory of Stock Exchange Speculation, Crump.
Minneapolis and Cleveland Conferences of Good City Government, 1895.
Massachusetts Board of Agriculture, Gypsy Moth, Forbush and Ferrard.
Report of Commissioner of Labor, Vol. 1, 1894.
Strikes and Lockouts.
Kansas Academy of Science, 1893-4.
National Educational Association, 1895, (Denver.)
Senate Report, Wholesale Prices, Wages, and Transportation, parts 1, 2, and 4.
Eleventh Census U. S. 1890, Life Insurance, part 2.
Yearbook of Agriculture, 1894.
Inventors, Hubert, Donated by Cyrus H. McCormick.
Missouri's Horticultural Society, 1895.
Kansas Bureau of Labor, 1895.

Weather Report for August, 1896.

BY C. M. BRESEE, OBSERVER.

A hot, dry, windy month, during which late corn suffered quite severely, but early corn did well. The county over, corn will be a better crop than a year ago. Corn cutting is about completed. Haying began early in the month. The crop is abundant and cheap. Pastures fine and stock water plentiful. All

forage crops good. Third crop of alfalfa cut during the month. Peaches and grapes in the market throughout the month. Peaches a fair crop; the grape crop the largest for years.

Temperature.—The mean temperature was 77.45°, which is 1.62° above normal. There have been 26 cooler and 11 warmer Augusts in our record. The highest temperature was 107½°, on the 8th; the lowest, 52°, on the 27th—a monthly range of 55½°. The greatest daily range was 36°, on the 30th; the least 7°, on the 19th. The mean daily range was 26.5°. The warmest day was the 7th, the mean temperature being 89.50°. The coldest day was the 17th, the mean temperature being 65°. The mean temperature at 7 A. M. was 69.81°, at 2 P. M., 88.71°; at 9 P. M., 75.64°. The mean of the maximum thermometer was 92.02°; of the minimum, 65.52°; the mean of these two being 78.77°.

Barometer.—The mean pressure for the month was 28.828 inches, which is .018 inch above normal. The maximum was 29.135 inches at 7 A. M. on the 27th; the minimum, 28.516 inches, at 2 P. M. on the 21st; monthly range, .619 inch. The mean at 7 A. M. was 28.855 inches; at 2 P. M., 28.814 inches; at 9 P. M., 28.815 inches.

Cloudiness.—The per cent of cloudiness was 34.94. This is nearly normal. The per cent at 7 A. M. was 45.16; at 2 P. M., 40.32; at 9 P. M., 19.35. Four days were entirely cloudy; one was five-sixths cloudy; two were two-thirds cloudy; four were one-half cloudy; six were one-third cloudy; four were one-sixth cloudy; and ten were clear.

Precipitation.—The total rainfall was 2.26 inches. This is 1.35 inches below the normal. The table following shows monthly rainfall for 1896, the normal, and departure from normal:

	Normal.	1896.	Departure from Normal.
January	7.71	1.31	-6.40
February	1.06	1.56	+.50
March	1.30	.87	-.43
April	2.72	5.49	+2.77
May	4.13	7.41	+3.28
June	4.43	2.63	-1.80
July	4.73	5.39	+.66
August	3.61	2.26	-1.35
Totals	22.75	24.92	+2.17

Wind.—The wind was from the south twenty-eight times; southeast, twenty-three times; southwest, eleven times; east, ten times; northeast, nine times; north, eight times; northwest, three times; west, one time. The total run of wind was 7052 miles, which is 1253 miles above the average and the highest August run on our record. This gives a mean daily velocity of 227.48 miles, and a mean hourly velocity of 9.48 miles. The highest daily velocity was 371 miles, on the 16th; the lowest, 76 miles, on the 26th. The highest hourly velocity was 33 miles, between 3 and 4 A. M., on the 22d.

The following tables give comparisons with preceding Augusts:

August.	Number of Rains.	Rain in inches.	Per cent of Cloudiness.	Prevailing Wind.	Mean Temperature.	Maximum Temperature.	Minimum Temperature.	Mean Barometer.	Maximum Barometer.	Minimum Barometer.
1858	5	3.98	52	SE	74.64	100	50	28.77	29.08	28.46
1859	5	6.84	52	SE	76.87	98	58	28.77	29.08	28.46
1860	5	1.39	34	S	78.14	99	62	28.77	29.08	28.46
1861	5	2.85	39	S	77.66	101	64	28.77	29.08	28.46
1862	5	6.21	40	S	77.97	96	64	28.77	29.08	28.46
1863	5	1.84	53	S	77.72	99	56	28.77	29.08	28.46
1864	5	5.04	53	S	75.01	90	59	28.77	29.08	28.46
1865	5	1.10	26	SW	76.31	98	55	28.77	29.08	28.46
1866	5	2.78	29	SW	77.00	94	59	28.77	29.08	28.46
1867	5	5.94	42	SE	70.44	92	54	28.77	29.08	28.46
1868	10	2.43	43	SW	75.25	91	62	28.77	29.08	28.46
1869	13	5.21	52	NE	71.95	99	52	28.77	29.08	28.46
1870	8	4.28	36	SW	73.27	94	53	28.77	29.08	28.46
1871	9	5.32	42	SW	76.92	96	57	28.77	29.08	28.46
1872	9	1.64	34	SW	77.88	104	59	28.77	29.08	28.46
1873	4	2.35	34	SW	83.11	109	58	28.77	29.08	28.46
1874	4	1.40	35	S	72.12	93	47	28.77	29.08	28.46
1875	10	10.70	31	SE	76.81	92	48	28.77	29.08	28.46
1876	6	2.78	39	SW	75.04	96	43	28.77	29.08	28.46
1877	5	2.66	23	SW	77.57	97	47	28.77	29.08	28.46
1878	4	1.61	41	SW	77.57	99	61	28.77	29.08	28.46
1879	11	8.81	43	SW	76.00	97	46	28.77	29.08	28.46
1880	11	4.3	24	SW	83.81	103	52	28.77	29.08	28.46
1881	3	3.98	37	SE	72.96	93	50	28.77	29.08	28.46
1882	4	6.21	43	SW	72.14	94	48	28.77	29.08	28.46
1883	5	8.9	30	SW	74.17	98	41	28.77	29.08	28.46
1884	12	2.06	27	SWSW	79.27	110	49	28.77	29.08	28.46
1885	11	6.66	36	SW	73.65	106	51	28.77	29.08	28.46
1886	9	4.46	33	SW	74.11	104	49	28.77	29.08	28.46
1887	6	2.48	34	SW	74.06	97	51	28.77	29.08	28.46
1888	13	5.73	40	SE	74.33	102	50	28.77	29.08	28.46
1889	5	98	18	S	73.64	102	40	28.77	29.08	28.46
1890	6	4.32	16	S	74.52	105	46	28.77	29.08	28.46
1891	9	2.92	27	SW	72.26	101	46	28.77	29.08	28.46
1892	3	10.47	35	SW	79.88	107	45	28.77	29.08	28.46
1893	12	10.74	39	SW	74.77	97	54	28.77	29.08	28.46
1894	7	2.26	35	S	77.45	107	52	28.77	29.08	28.46
1895	26	137.35	1274		2881.4		662.56			
1896	7	3.61	35.4	SW	75.83		28.81			
Sums	261	137.35	1274		2881.4		662.56			
Means	7	3.61	35.4	SW	75.83		28.81			

WIND RECORD.

August.	Total Miles.	Mean Daily.	Maximum Daily.	Minimum Daily.	Mean Hourly.	Maximum Hourly.	Minimum Hourly.
1886	5921	191.00	386	63	7.95	25	40
1889	6137	197.97	443	77	8.25	40	28
1891	5737	185.06	333	42	7.71	28	28
1892	5246	169.22	430	38	7.05	29	22
1893	5667	182.80	504	64	7.62	26	26
1894	5220	168.93	285	75	7.01	22	22
1895	5416	174.71	401	50	7.28	26	26
1896	7052	227.48	371	70	9.48	33	33
Sums	46396	1497.17			62.35		
Means	5799	187.15			7.79		

The Small Farm.

The editor of the *Southwestern Farm and Orchard* answers inquiries as to what he would do with several sizes of small farms, as follows:

"What We Would Do With Five Acres of land.—To begin with, we should not expect to make a livelihood out of five acres, unless near a good town, where we could sell garden truck. A five-acre garden will produce all the way from \$1,000 to \$5,000 a year, according to the amount of labor and manure you put into it. We should plant out one acre with small fruits, another acre to Irish and sweet potatoes, half an acre to early peas and beans, followed by sweet corn, half an acre to asparagus and rhubarb beds, and the remaining two acres to all kinds of vegetables.

"What We Would Do With Ten Acres.—If we were poor men, we would plant five acres to alfalfa and five acres to vegetables. If we were rich men we would plant eight acres with apples, one acre with various other fruits, and one acre to vegetables.

"What We Would Do With Twenty Acres.—We would devote six acres to alfalfa. That would keep two horses, two cows, and a few hogs. Then on four acres we would grow small fruits and every vegetable known to man. We should reckon to live off these ten acres, and make our profit off the other ten, which we should plant out with apples, peaches, and plums, which ought to net us over \$1,000 a year.

"What We Would Do With Forty Acres.—We would put twenty-five acres in alfalfa and raise hogs. Five acres we would devote to vegetables, and ten acres we would plant to fruit trees.

"What We Would Do With Eighty Acres.—We would put sixty acres in alfalfa, and keep cows and hogs. The rest we would set out in fruit trees.

"What We Would Do With One Hundred and Sixty Acres.—We would sell half."

Short Lecture Course for Farmers.

Beginning on the first Tuesday of February each winter, a two-weeks course of lectures is given on agriculture and related arts and sciences. This is provided for those farmers and others who cannot take up the fuller work of the regular College classes. Members of the Faculty are assisted in delivering these lectures by prominent farmers, stock raisers, and fruit growers of the State; and full discussions of the topics presented bring out the varied experiences of those attending. This course, during the winter of 1893, was attended by about 40 farmers.

College Business.

Loans upon school-district bonds are to be obtained from the Loan Commissioner. Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan. All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. The *INDUSTRIALIST* may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson. Donations for the Library or Museums should be sent to the Librarian, or to Prof. Popenoe, Chairman of Committee on Museums. Questions, scientific or practical, concerning the different departments of study and work, may be addressed to the several Professors and Superintendents. General information concerning the College and its work—studies, examinations, grades, boarding-places, etc.—may be obtained at the office of the President, or by addressing the Secretary. The Experiment Station should be addressed through the Secretary.

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R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc.

VARNEY'S BOOK-STORE.—Popular Headquarters for College Text-Books and Supplies. Second-Hand Books offered as good as new. Call when down town. Always glad to see you.

LESLIE SMITH. College and School Books and Stationery. Note-books, tablets, inks, pens, pencils, drawing instruments, etc. Also a full line of reliable boots, shoes, slippers, and rubbers. Prices are low.

DRY GOODS.

E. A. WHARTON'S is the most popular Dry Goods Store in Manhattan. The greatest stock, the very latest styles, the most popular prices. Always pleased to show goods.

CLOTHING.

ELLIOT & GARRETSON, Clothiers and Furnishers, invite students and all other College people to call and examine their large stock of new goods. All the desirable things in men's wear. Latest styles in every department.

KNOTSMAN CLOTHING COMPANY offers a great variety of clothing and furnishing goods at prices to suit the times. Call without fail before buying.

WATCHES, JEWELRY.

R. E. LOFINCK keeps a big stock of Watches, Clocks, Jewelry and Gold Spectacles, also Musical Instruments.

GENERAL MERCHANDISE.

THE SPOT CASH STORE is Headquarters for Dry Goods, Notions, Boots and Shoes, Hats and Caps, Clothing, and Ladies' Wraps. Lowest prices in the city. A complete grocery store in connection.

DENTIST.

D. C. P. BLACHLY, Dentist. Gold filling a specialty. Telephone No. 139.

MEAT MARKET.

SCHULTZ BROS. offer Fresh and Salt Meats in great variety. Students are invited to call at their market on Poyntz Avenue, one door east of Fox's bookstore, or give orders to delivery wagon.

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Historical society

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Superintendent of Sewing
OZNI P. HOOD, M. S.,
Professor of Mechanics and Engineering,
Superintendent of Workshops.
ALEXANDER B. BROWN, A. M.,
Professor of Music.
JOHN S. C. THOMPSON,
Superintendent of Printing.
FRANCIS H. WHITE, A. M.,
Professor of History and Political Science.
CHARLES C. GEORGESON, M. S.,
Professor of Agriculture,
Superintendent of Farm.
ERNEST R. NICHOLS, A. M.,
Professor of Physics.
NELSON S. MAYO, D. V. S., M. S.,
Professor of Physiology and Veterinary Science
JULIUS T. WILLARD, M. S.,
Associate Professor of Chemistry.
ALBERT S. HITCHCOCK, M. S.,
Professor of Botany.
SILAS C. MASON, M. S.,
Professor of Horticulture,
Superintendent of Orchards and Gardens.
MISS JOSEPHINE C. HARPER,
Instructor in Mathematics
MISS ALICE RUPP,
Instructor in English.
HARRY G. CAVENAUGH, Captain 13th U. S. Infantry,
Professor of Military Science and Tactics.
THOMAS E. WILL, A. M.,
Professor of Political Economy.
MISS JULIA R. PEARCE, B. S.,
Librarian.

ASSISTANTS AND FOREMEN.

- C. M. BRUESE, M. S., Assistant in Chemistry.
GRACE M. CLARK, B. S., Stenographer in Executive Office.
ISABELLA R. FRISBIE, B. S., Assistant in Sewing.
RUTH T. STOKES, M. S., Assistant in Household Economy.
WM. BAXTER, Foreman of Greenhouses.
W. L. HOUSE, Foreman of Carpenter Shop.
ENOS HARROLD, Foreman of Iron Shops.
GEO. SEXTON, Foreman of Farm.
C. A. GUNDAKER, Engineer.
A. C. MCCREARY, Janitor
JACOB LUND, M. S., Fireman and Steam-fitter.

ASSISTANTS IN EXPERIMENT STATION.

- F. A. MARLATT, B. S., Entomology
F. C. BURTIS, M. S., Agriculture.
D. H. OTIS, B. S., Agriculture.
F. C. SEARS, M. S., Horticulture.
J. B. S. NORTON, B. S., Botany.
ISAAC JONES, B. S., Irrigation.

REMINISCENCES OF MY FIRST YEAR IN THE ARMY. I.

BY H. G. CAVENAUGH,
(Captain Thirteenth Infantry, U. S. A.)
Professor of Military Science and Tactics.

IN the spring of 1861, when the forebodings of the people, that the political differences of the nation would culminate in civil strife, had settled into hopeless conviction, the citizens of Delaware (the State where I happened to reside at the time) were enjoying a reasonable degree of prosperity, and, if we except the excitement of party issues, were comparatively tranquil.

We shall not dwell upon the political strife, but commence where my part in the struggle began. I was not old enough to be accepted at the first call for troops by President Lincoln, so had to forego my desire to enlist until the fall of 1861.

The regiment of which I afterwards became a member was organized in May and mustered into the service of the government for three months. The anticipations of the people of the north, that that would be sufficient time to suppress the rebellion, or bring back to the Union those States which had passed ordinances of secession, were not realized, as we all so well remember.

Upon the second call for troops by the President, the regiment—1st Delaware Volunteers—was reorganized for three years' service, or during the war. I was enlisted, accepted, and mustered in September 2, 1861. We will not go into the many and minute details of forming companies, electing officers, appointing non-commissioned officers, etc., but if you will go with me to Fortress Monroe, Va., and its vicinity, I will try to tell you our experience of the first year of the rebellion. We were indeed fortunate in our first camp and duties.

The morning of October 21, 1861, when the regiment disembarked at Old Point Comfort (Fortress Monroe), was chilly and rendered unusually dismal by a fine, drizzling rain. We stood upon the wharf while our Colonel went to report for orders to General John E. Wool, who was in command of all the Union forces in that vicinity. An aid-de-camp soon conducted us to our camping ground, which was on the main land, about three miles from the city of Hampton, which early in the summer of that year had been destroyed (burned) by the Confederates. Why they did not take possession of or destroy Fortress Monroe, has never been satisfactorily explained. Soon after our arrival all hands went to work to lay out camp and pitch tents. Imagine our consternation when we found the ground was low and the continued rains had turned it into a marsh. But a few days sufficed to cure the evil by draining, ditching, and elevating tent floors, parade grounds, etc. The occupants of the tents had their share of mud and water, and our experience was that our beds were watery, if not feathery.

The month following our arrival, we were enabled to profit by the constant experience of every kind of field, guard, picket, and other duties, daily drills of squad, company, battalion, brigade, and skirmish. During the same time the officers were deep in the perplexities of morning and monthly reports, muster, and clothing rolls, quartermaster, commissary, and ordinance return. Strict discipline, with judicious instructions (of which there was no end), through this preparatory schooling, made the regiment a very good volunteer organization, and inspired each man with a just pride in it that proved most excellent throughout its succeeding severe campaign of marching and fighting.

The Colonel had succeeded in securing full dress uniforms for the men, and required the officers to provide themselves with epaulets, regulation felt hats, and plumes (then the uniform), and had obtained, we know not how, for the Drum Major the tallest and most gorgeous shako.

One day we learned that President Lincoln would inspect us. It is unnecessary to say that every man exerted his utmost endeavors to be the sprucest and most military looking man in the command, in the hope, I suppose, of being promoted on the spot; but alas! vain hope. However, Adjutant's call sounded, battalion formed, and as the band was "beating off," the President, accompanied by a large escort, all mounted, arrived upon the grounds and followed in the rear of the band. When it had reached the left and had countermarched to return to the right of the line, the Drum Major, in all his gorgeousness, with glittering baton at an angle of forty-five degrees, found himself face to face with the Commander-in-

chief. All came to a stand-still; the President sat looking somewhat embarrassed, the Drum Major "marking time." Question, Who was to give way? The President, evidently recognizing the determination of the Drum Major to stand by the band, turned aside with his followers and gave the band the right of way out of their dilemma.

The monotony of winter camp did not manifest itself to any great extent, for the reason that before entering the service a number of the officers and men were conspicuous in devising means for passing the time agreeably if not profitably. In the course of a few weeks a building of logs (now known throughout the army as stockade) was erected for a theatre, sufficiently large to accommodate about four hundred persons, a stage, and in fact all the paraphernalia necessary for presenting most any play the theatrical talent of the regiment imagined themselves capable of. A number of pieces were presented very creditably.

About the time the building was completed the Army of the Potomac had landed at Fortress Monroe and gone up the peninsula to Yorktown. The opening was a ball. Among the guests were a number of French naval officers and some of General McClellan's staff, also Count de Paris and the Duke de Chartres. Refreshments were liberally provided, and one of our officers distinguished himself by dispensing too much egg-nog to the Duke, who did not appreciate its properties until the next morning. (It is an American drink).

My first experience on picket duty commenced about this time, and being a corporal, I felt of much importance, from the fact that I did not have to stand post as a sentinel, pickets being then posted as the ordinary sentinels around a camp fort or garrisoned town—two hours on and four hours off. Many times afterwards I felt that I would rather have stood post than to go splashing, falling, and floundering over logs, ditches, trees, etc., going to and from posting the line of sentinels, which was about two miles in length, in a dense Virginia woods, at all times of the day and night. There was not an hour of the night but that some man saw, or imagined he saw, a rebel. He would challenge; no answer; bang, bang; when the whole line would begin a fusillade, which meant an investigation. It was generally found that a stray cow, horse, or pig had gotten in the vicinity of the picket line; might also say they never got away, although it was positively against orders to kill animals or destroy property. I cannot let this opportunity pass without telling of a peculiar order received once in connection with the destruction of property. It was this: "Only the top rails of any fence will be taken for use as fuel." We strictly complied with the order, for we always left the bottom rail.

About November 1st one of the companies was sent to the extreme outpost to receive a flag of truce, accompanied by seven Confederate officers. They had brought the usual summons from General Magruder, who commanded the Rebel forces, to "get out," "evacuate," etc., etc., but we did not leave. It was quite evident the object of these delegations was for the purpose of gaining or trying to obtain information. They generally desired to visit Hampton, on the pretext of wanting to find a colored woman, but really to investigate the inhabitants within our lines, who were their strong friends and adherents. They were never allowed to pass the chain of pickets. On their return to camp of the company, we all flocked to know what a "Johnny" looked like, for up to this time we had never seen one.

A SCIENTIFIC HOAX.

BY PROF. OSCAR E. OLIN.

IN the current number of *Popular Science Monthly* a naughty President Jordan of Stanford University in a seemingly earnest article attempts a great scientific hoax. The article was briefly referred to in an editorial of last week. In it he describes the experiments of the "Astral Camera Club of Alcalde" with what he calls the "sympsychnograph." This is an instrument by aid of which seven of the most "magnetic" members of the "Club" succeeded in imprinting upon a sensitive plate, while looking at it in the dark, the mental image of a cat which they held in imagination. The article is written with much detail and explanation, and while likely to deceive, is probably intended to satirize our sensational craze for the wonderful. It seems that the "Alcalde" club met on April first, and it transpires that the

composite picture which accompanies President Jordan's article was made from superimposed photographs of the college cat.

WESTERN GARDEN INSECTS.

BY PROF. E. A. POPENOE.

GARDENING in the western part of this State is sometimes subject to other drawbacks than those connected with an uncertain water supply. A recent examination in Logan County of some irrigated gardens recalled vividly the observations of years past upon the danger of overwhelming insect attack upon isolated gardens, such as these must be in a sparsely settled area.

The native herbage is diversified more widely than would be believed at first sight. The various plants support insects of many sorts. When, through drought, or through the inordinate multiplication of the plant-feeders, the natural food supply fails, the hungry pests fall upon the cherished garden with a result easily seen. The superior quality of the garden herbage also seems to be an attraction to some species, which leave their native food, even in favorable seasons, to attack plants under culture. In addition to the native foes, the gardener must contend with some that seem to be immigrants from the eastern cultivated regions, but these are few and not comparable in importance with those that come from the neighboring vegetation, and which must be met as soon as growth starts in the new garden.

Probably the most troublesome of the native pests are the several species of blister beetles, and the numerous species of grasshoppers. But of very general distribution and of much importance are the various insects, whether native or introduced, that attack garden plants of the squash family. The blister beetles are apparently omnivorous. Feeding at large upon the native chenopods, amaranths, and solanaceæ, they are hardly noticed, except by the collector, until they find the native food supply insufficient. They then travel to the gardens, where they mass first upon the potatoes and beets, but after the consumption of these plants other vegetables go in turn, with scarcely an exception. They frequently enter the garden in armies, and much destruction is often accomplished before the owner is fairly aware of their presence. They are as active as they are voracious, flying and running equally well, and though when beaten off the plants they may run away for a while, they return with equal haste, and nothing short of their early destruction is a profitable measure.

There is perhaps no more immediately successful method of destroying them than by beating them into a broad pail or pan in which there is enough kerosene or gasoline to cover the insects. The use of paris green sprayed or dusted upon the plants is finally successful, but meantime the insects have done the plants much damage.

Of the grasshoppers, it may be said that their attacks are not limited to the fodder plants. Though less general feeders than the blister beetles, their preferences are sufficiently broad to make them troublesome garden pests. They do not so generally appear in armies, and their attacks are not so commonly immediately destructive, but their persistence at last brings the same result. These insects usually come into the garden from the immediate borders, and are less likely to be troublesome when the cultivated area is separated by broad belts of plowed land from the surrounding prairie. If the garden be open to poultry, the grasshoppers are not usually destructive.

The various garden cucurbits suffer greatly from the attacks of the same insects that are the foes of these plants in more eastern localities. The squash bug is nowhere more destructive than in these western gardens, and its great abundance in certain places was notable. There seem to be no checks upon its increase, and where seen, it had entirely prevented the maturity of the fruits upon the vines.

It seems that the baiting and trapping of the adults in early spring might be profitably attempted here. As the gardens are more or less isolated, the presumption is strong that a little effort applied to the destruction of the first bugs of the season—those that have passed the winter as adults in the vicinity—would largely bring immunity from the pest during the early growth of the plant, and the later flyers, from neighboring farms, might be met with less labor.

Evidence is abundant that the western gardener has not sufficiently adapted to his use the suggestions from the experience of others in applied entomology. But even when he has so done, he will meet with problems peculiar to his locality, which must be met largely by his own energy and ingenuity.

SUGGESTIONS FOR THE IMPROVEMENT OF MANHATTAN.

BY PROF. J. D. WALTERS.

(Excerpts from a paper read before the Manhattan Horticultural Society.)

THERE is nothing more delightful than the building of "Spanish Castles," and nothing more discouraging than the long waiting for results, especially when the means at hand are greatly inadequate; yet, my suggestions must not be of the former kind; they must not concern themselves with dreams about grand parks and lofty terraces; they must involve possibilities—plans that could be accomplished if Manhattan should resolve to go to work.

In the first place, we might prune more and mow oftener. It is a fact that in twenty years our numerous avenues of shade trees never looked so dilapidated as they do just now. There are but few trees that do not need the pruning knife and the saw. Most of our shade trees branch out at the height of six to nine feet, while they ought to fork at the height of ten to sixteen feet. All the lower branches should be removed as soon as the trees are old enough to form crowns above this level. This would give us the same shade in summer, and add the free and unlimited circulation, sixteen to one, of the most precious thing that nature offers to man—fresh air. Many trees need also judicious topping, especially the cottonwoods and the elms. By this I do not mean the lopping off of large branches with the ax, but the careful shortening of the longest top branches. Some trees need protection from horses. This could easily be afforded by wrapping them with a round or two of poultry netting. It would pay the city to consider this work as street repairs. If left to the property owners, it is neglected because they do not possess the necessary ladders, patent pruners, and long-handled pruning knives.

The city park has been kept in fair condition during the past summer, and is now, without much expense, rapidly growing into a thing of beauty. We may well be proud of this piece of landscape. The original plan was to transform the southeast corner into an interesting natural water landscape, but that part of the improvement may wait several years, i. e., until the trees have grown larger.

The most necessary work for the present is the planting of Bluemont and North Juliette Avenues with four rows of shade trees. By adding seven or eight blocks of planting to the present beautiful boulevard, we will get an uninterrupted drive way and double promenade, one hundred feet wide, from Main Street to the College gates. A glance at the map of the city will show the effect and importance of the improvement. It was a happy forethought of our pioneers to reserve such a grand thoroughfare. What would Kansas City give today if its map were crossed by such magnificent park rows? It is, of course, necessary to do some engineering before the planting can begin, but I consider this improvement the most effective one that the city could undertake. The citizens of Manhattan have always been slow to realize what the College is doing for them, and how they might aid the growth of the institution. Here is a chance to investigate and move ahead.

Another step that might be taken is the improvement of Battery Park. At present the place is an eye-sore—it is more—a "nose-sore" as well. The south half of it is simply an immense, smoking, and steaming dung heap, a breeding-place of pestilence, while the north half is a rendezvous for tramps. Parts of it contain many nice specimens of shade trees, and all of it would grow trees and shrubs to perfection.

An undertaking of far-reaching consequence for our little city would be the acquirement of the natural grove on the east side of Blue River, known as Sarber's woods. There is not a place in all Kansas as perfectly fitted for summer meetings of all sorts, and not a Chautauqua park in the Mississippi valley that has all the elements of landscape beauty like this grove, together with Mount Prospect, Bluemont, and the College campus. We have all the other factors to make such an assembly park a booming reality—railroads, rivers, creeks, sunny hills and shady nooks, fine waterworks, musicians, a College that might furnish speakers and teachers—in short, we might easily make Manhattan the Saratoga of the Sunflower State.

Eight or ten thousand dollars, invested in real estate and the most necessary buildings, would be sufficient to make a start toward an improvement that might become the pride of future Manhattan and bring here annually from ten to fifty thousand strangers. Let us consider this matter, and go ahead.

COLLEGE WOMEN AND MATRIMONY.

BY F. A. WAUGH, '91.

UNDER captions similar to that above, there have recently appeared some interesting collations of statistics in the *Century Magazine* and in the *Forum*. The statistics given by Miss Shinn in the October (1895) number of the former magazine were based on calculations from the register of the Association of Collegiate alumni, and show that of women graduates past forty years of age 56.9 per cent of those from co-educational institutions have married; the percentage of those from separate colleges being 51.8. We may remark in passing that this is a clear gain of five in a hundred for the co-educational institutions. Frances M. Abbott, writing in the November *Forum*, gives her figures from the Vassar alumni alone. The percentage of married women among the Vassar graduates of forty years old and over is 53.5, nearly two per cent in advance of the general average of women's colleges as given by Miss Shinn.

It might possibly interest a few curious persons, in the light of these statistics, to examine the register of graduates of the Kansas Agricultural College, and to see how its large contingent of women graduates have met the problems of life. Referring to the summary on page 83 of the last college catalogue, one finds that 52 of the 152 living women graduates are reported as housewives. This is over one-third, which, after making necessary allowances, is a remarkable figure. In the first place, there are a number of recent marriages to bring up the 52 nearly to 60; but chiefly it must be considered that of the 152 women graduates, there are living 94 women who graduated more than five years ago; of these, 57 per cent are married. There are 49 who graduated more than ten years ago; of these, 84 per cent have married! These figures are worth more than passing notice when compared with Miss Shinn's calculation of less than 57 per cent of married women among graduates over forty years old taken from many co-educational institutions.

The question is sometimes raised as to whether the Agricultural College makes men farmers. Would it be fair to present the foregoing figures as evidence that the College does fit women for housekeeping?

An examination of the register of alumni of the Kansas Agricultural College yields very little information with respect to the attitude of men graduates on this question. Out of curiosity I have canvassed the five classes with which I am best acquainted, namely 1888-92. Even here I find myself so poorly informed as to suspect a number of men of being married without being able to certainly remember the fact. Without including doubtful cases, however, the percentage of married men in these five classes appears to be .37, to be compared with 29 per cent of married women in the same classes. The discrepancy is certainly fully as great as it here appears to be.

The writers of the magazine articles mentioned philosophize at length over their figures. The calculations here recorded from K. A. C. catalogue form but a slender basis for speculation over whys and wherefores, but they are not without a serious interest; and it is not without record that less reliable statistics have men in college debates or even in political campaigns.

UNIVERSITY OF VERMONT.

The Farmer as a Mechanic.

While every farmer cannot be a skilled mechanic, yet every farm ought to have a supply of tools and a place in which to use them. An exchange says: "They are useful during the growing season, saving many a trip to town when the farmer is so busy that he cannot well spare the time, and they are equally useful during the winter when any farmer having only a moderately mechanical turn can make for himself at small cost a very large number of useful articles that will facilitate his work, and that would be quite expensive if he were obliged to buy them. He can easily make his own gates, hay racks, feed and water troughs, wagon beds, feeding mangers, breeding boxes, tanks, stone boats, stock racks, chicken coops, shipping crates, and many other conveniences, besides keeping purchased tools and implements and fences and buildings in good repair. The farmer who buys every thing of this kind is likely to feel a great deal of anxiety and loose sleep when pay day comes, unless he is well-to-do beyond the average. With tools he can surround himself with many conveniences that he would in many cases have to do without. Tools on the place and a workshop to use them in are also a very great advantage when the boys are on the farm. It not only interests them in their work, but develops the constructive faculty to a very useful degree."

Calendar.

1896-97.
Fall Term—September 10th to December 19th.
Winter Term—January 5th to March 27th.
Spring Term—March 30th to June 10th.
June 10th, Commencement.
1897-98.
Fall Term—September 9th to December 18th.

To School Officers.

The College Loan Commissioner has funds now to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioner and the State Agricultural College. Address C. R. Noe, Loan Commissioner, Leon, Kan.

GENERAL LOCAL NOTES.

B. F. Durant, First-year, has gone home sick.

The Cadet Band and College Orchestra have been organized.

Seven new students last week bring the total enrollment to 573.

Miss Bertha Carlton, of La Junta, Colorado, visited College on Tuesday.

C. C. Rogers, First-year, spent three days last week in Topeka, on business.

Miss Emma Spohr, of the Manhattan City Schools, was an interested visitor on Saturday.

Dr. Mayo is a recent addition to the staff of the *Kansas Farmer*, being chosen Veterinary Editor.

A Topeka boiler maker has been engaged for a week on repairs of one of the greenhouse boilers.

President Fairchild addressed the Young Men's Christian Association on Sunday, September 20th.

R. E. Worden, Second-year, drops out before fairly started to help his father on the farm near Syracuse.

Mrs. Kedzie led the first meeting of the Young Women's Christian Association on Saturday afternoon.

Mrs. Mason showed her cousin, Mrs. M. M. Hobson, of Kansas City, through College buildings on Saturday.

Prof. Wm. C. Young, of the State University of Michigan, was the guest of Secy. and Mrs. Graham on Tuesday.

School and Fireside, of Hutchinson, reproduces Prof. Walters' recent articles in the *INDUSTRIALIST*, "Historic Notes on Drawing in the Public Schools."

Little Carl Hood has been very sick for a week, of inflammation of the stomach. He is thought to be better to day, and his recovery only a matter of time.

Mr. and Mrs. S. V. Lee and Mrs. Thompson showed Mrs. Stancliffe, of Atlanta, Ga., sister to Mrs. Lee, the places of greater interest at the College on Wednesday morning.

The Senior Class has elected officers as follows: Minnie Spohr, President; Mark Wheeler, Vice President; Mary Norton, Secretary; J. E. Trembly, Treasurer; E. L. Hougham, Marshal.

Three hundred tea roses find a place in the greenhouse for winter blooming, among them such well-known and popular sorts as Bride, Bridesmaid, Sunset, Sofrano, Meteor, and Perle des Jardins.

The Third-year Class is organized with the following officers: E. Butterfield, President; Tacy V. Stokes, Vice-President; Jessie Bayless, Secretary; Inez Manchester, Treasurer; Jeanette Carpenter, Marshal.

Prof. W. H. Brewer, of Yale University, favors us with a printed lecture on "The Effect of Well-kept grass land, long established, in giving stability to business." It urges increased attention from both farmer and experimenter.

The Young Women's Christian Association of Kansas will meet in their eleventh annual State Convention at Manhattan, October 15th to 18th, as guests of the College Association. Mrs. Kedzie is chairman of the Entertainment Committee.

The College has received a large wall portrait of an old friend, tried and true, the lamented Joshua Wheeler, for so many years a Regent of the institution—the gift of Mrs. Wheeler. It will be given a place on the walls with the portraits of other departed friends.

"The Artistic Element in Engineering" is the title of an address by Prof. F. O. Marvin of the State University, at the Buffalo meeting of the A. A. A. S. It is a very interesting plea for taste in engineering enterprises and in machinery, for which we thank the author, who is himself an artist as well as an engineer.

President Fairchild reports an interesting educational convention at Marion on Tuesday last. The meeting was addressed by State Superintendent Stanley, President Taylor of the State Normal, and President Fairchild. Prizes of libraries to the value of \$10 and \$8 were awarded to the schools showing the largest attendance.

The Second Division of the Third-year Class furnished public entertainment in chapel on Saturday afternoon, in the following program: "Art and Morality," E. C. Adams; "The Study of Elocution," E. Butterfield; "The Value of Pleasing Manners," J. A. Conover; "Coming of Citizenship," Minnie Copeland; "Our Merry Swiss Home," Vocal Duet, Misses Perry and Gikerson; "Development of Genius by Education," W. R. Correll; "The Right Must Conquer," Lucy Cottrell; "Literary Pursuits and Active Business," G. F. Farley; "Too Late for the Train," Anna Hanson.

GRADUATES AND FORMER STUDENTS.

Lillian St. John, '91, teaches the Tabor Valley school in Riley County.

J. W. Holland, '96, orders the *INDUSTRIALIST* sent a year to his address at Oneida, Idaho.

Bert Harrop, student a few years since, succeeds his father in the drug business at Manhattan.

Edith Lantz, '96, returned on Tuesday from a visit of three months with relatives in Salida, Colorado.

Bertha Bacheller, '88, of the Junction City Schools, spent Saturday at the College, in further pursuit of knowledge in special lines.

M. G. Stearcy, student last year, orders the *INDUSTRIALIST* sent to him at Cherryvale. He plans to return to College next year.

W. E. Whaley, '86, visited College Wednesday morning before returning to Chicago to resume his duties in the South Side School.

S. R. Vincent, '94, who two years past has taught and farmed near Okree, Okla., is taking post-graduate work in mathematics, making Manhattan his home.

Dr. Ben Skinner, '91, writes from Granada, Kansas, of a good country practice which pays him well, but confesses the old restless, ambitious spirit stays with him.

G. G. McConnell, of Menoken, Third-year in 1882-3, is to be married, October 7th, to Miss Lorena Spaulding of Collins, Missouri. Mr. McConnell is a brother of Mrs. Graham.

J. E. Payne, '87, Superintendent of the Colorado Rain-belt Experiment Station at Cheyenne Wells, contributes to the *Kansas Farmer* of September 24th an article on "Non-Saccharine Sorghums Tested."

J. B. Dorman, '96, writes from Middle Grove, N. Y., of teaching at the foot of the Andirondacks. He spent the summer visiting his parents and relatives and in making short excursions into the mountains.

Another of our graduates is called to a place of honor and trust in a sister institution. Isabella R. Frisbie, of the Class of '94, and for a year past Assistant in Sewing, leaves tomorrow for Brookings, South Dakota, to take the chair of Domestic Economy in the State Agricultural College, at a salary of \$800 for the first year.

The Post-graduate Class of twenty-seven members is the largest in the history of the College, and promises careful, painstaking work leading to the master's degree. The class consists of the following members: J. H. Criswell, '89; H. N. Whitford, Bertha Kimball, '90; Bertha Winchip, '91; Grace Clark, G. L. Clothier, D. H. Otis, F. C. Sears, '92; Maud Gardiner, Ivy F. Harner, '93; Clara Castle, G. L. Christensen, Lorena Clemons, Isabella Frisbie, Lorena Helder, Mary Lyman, W. H. Moore, S. R. Vincent, '94; Florence Corbett, Daisy Day, T. W. Morse, C. W. Pape, Etta Smith, '95; May Bowen, C. M. Buck, Gertrude Havens, Sue Long, Miriam Swingle, '96; Eva C. Gill, (Lawrence '95).

Steer-Feeding Experiments, Series V.

Bulletin No. 6 of the Experiment Station bears the above title with the following summary of results:—

"1. The results of the present experiment in the main confirm the results obtained in a similar experiment, and published in Bulletin No. 34.

"2. The 'balanced ration' produced much the best gains, and at a less consumption of food per pound of gain than the corn ration, whether fed as corn-meal or as ear corn. The lot made one pound of gain on 6.52 pounds grain fed, and 2.39 pounds fodder, while the lot fed corn-meal required 9.11 pounds grain and 2.09 pounds fodder to make a pound of gain.

"3. But the lot fed a balanced ration consumed a greater total weight of food than the lot fed corn-meal. During the 147 days they were fed, each steer in the lot ate an average of 20.8 pounds grain fed and 6.6 pounds fodder daily, on which we made an average gain of 2.76 pounds daily. The steers fed on corn-meal ate 18 pounds meal and 4.13 pounds fodder daily per head, on which they gained 1.97 pounds per head.

"4. The lot fed a balanced ration gained .79 of a pound daily per head more than the lot on corn-meal, for which gain they consumed only 2.8 pounds of grain and 2.47 pounds of fodder daily more than the lot fed corn-meal; or at the rate of 3.5 pounds of grain and 3.1 pounds of fodder per pound of gain, while we have seen that it required 7.52 pounds of grain and 2.39 pounds of fodder to produce a pound of gain. These facts prove that the better gain of this lot was due more to the quality of the food than the fact that they had better appetites.

"5. The mixed-grain ration stimulates the appetite more than the corn ration and induces the steer to eat more heartily of it than he will of corn-meal.

"6. The steers fed on the mixed-grain ration brought a better price on the market than either of the other lots, because they were in better condition. They averaged, on the day of sale, 136 pounds per head more than the lot fed corn-meal, 160 pounds more than the lot fed ear corn in the barn, and 164 pounds more than the outdoor lot.

"7. The experiment shows that, for rapid gains and top prices, the balanced ration excels any corn ration.

"8. But this does not necessarily imply that the balanced ration affords the cheapest gain. At the cost of feed in this case, 88 cents for oil-meal, 50 cents for bran, and 35 cents for corn-meal, per cwt., the gain produced by the mixed feed cost 3.94 cents per pound, while the gain produced by the corn-meal cost but 3.5 cents per pound.

"9. At the same price for the two lots in the stock-

yards, the lot fed corn-meal would have been the most profitable. As it was, the lot on a balanced ration brought 10 cent more per cwt. than the lot on corn-meal; but, even then, there is but a slight margin of \$3 on the whole lot in its favor, or only 60 cents per steer.

"10. The results, therefore, do not warrant an indiscriminate use of oil-meal and bran when corn is cheap. Look well to their cost before you purchase.

"11. In this experiment, the corn-meal gave better returns than ear corn. In our first feeding experiment, reported in Bulletin No. 34, the ear corn gave better returns than corn-meal. The question whether it pays to grind is, therefore, not settled.

"12. The steers on ear corn voided in manure upwards of 15 per cent. of their gain undigested, while those on corn-meal voided but 6½ per cent. The per cent. of grain found in the droppings when whole corn is fed, agrees with the results of a previous experiment to the same effect.

"13. The cost of the gain on ear corn was, in this experiment, half a cent per pound higher than the cost on corn-meal. It is probable, however, that when hogs follow the steers, this difference will be more than balanced by the larger per cent of hog food furnished when ear corn is fed.

"14. In spite of the fact that it was a favorable winter for outdoor feeding, the outdoor steers gained less and ate more than the indoor steers, though fed the same. This confirms our former experiment, in which it was found that the two lots gained alike, but the outdoor steers ate a good deal more.

"15. In the present experiment, the cost per pound of gain on ear corn was 3.99 cents for the indoor lot, and 4.35 cents for the outdoor lot. While the showing is thus in favor of barn feeding, the feeder should, nevertheless, count the cost of providing adequate barn room, and extra labor stabling involves, before he abandons the open yard with the conventional sheds."

Scheme of Public Exercises for 1896-7.

Sept. 19. First division, Third-year Class.
26. Second division, Third-year Class.

Oct. 3. Lecture.
10. First division, Fourth-year Class.
17. Third division, Third-year Class.
24. (Mid-term examination).
31. Fourth division, Third-year Class.

Nov. 7. Second division, Fourth-year Class.
14. Lecture.
21. Fifth division, Third-year Class.
28. Third division, Fourth-year Class.

Dec. 5. Lecture.
12. Sixth division, Third-year Class.
19. (Closing examination).

Jan. 9. Seventh division, Third-year Class.
16. Fourth division, Fourth-year Class.
23. Eighth division, Third-year Class.
30. Lecture.

Feb. 6. First division, Third-year Class.
13. (Mid-term examination).
20. Second division, Third-year Class.
27. Fifth division, Fourth-year Class.

Mch. 6. Third division, Third-year Class.
13. Lecture.
20. Fourth division, Third-year Class.
27. (Closing examination).

Apr. 3. Fifth division, Third-year Class.
10. Sixth division, Fourth-year Class.
17. Lecture.
24. Sixth division, Third-year Class.

May 1. (Mid-term examination).
8. Seventh division, Third-year Class.
15. Seventh division, Fourth-year Class.
22. Lecture.
29. Eighth division, Third-year Class.

June 5. Lecture.

COLLEGE ORGANIZATIONS.

Student Editors.—W. B. Chase, Emma Finley, E. Shellenbaum.

Webster Society.—President, W. B. Chase; Vice-President, J. B. Norton; Recording Secretary, F. Zimmerman; Treasurer, C. Masters; Critic, R. J. Peck; Marshal, C. D. Lechner; Board of Directors, R. W. Bishoff, S. B. Newell, R. B. Mitchell, C. C. Jackson, P. K. Symms.

Alpha Beta Society.—President, C. W. Shull; Vice-President, B. Dille; Recording Secretary, G. D. Hulett; Corresponding Secretary, Elsie Waters; Treasurer, Kate Zimmerman; Critic, Alice Shofe; Marshal, Anna Streeter; Board of Directors, Misses Channell and Pierce, and Mr. Rummold.

Hamilton Society.—President, W. L. Hall; Vice-President, C. B. Ingman; Recording Secretary, A. D. Whipple; Corresponding Secretary, Guy F. Farley; Treasurer, B. F. Durant; Critic, H. M. Thomas; Marshal, T. E. Thomas; Board of Directors, O. E. Noble, Chairman, H. McCaslin, Secretary, G. G. Menke, Wm. Poole, Wm. Anderson.

Ionian Society.—President, Winifred Houghton; Vice-President, Emma Finley; Recording Secretary, Jessie Bayless; Corresponding Secretary, Bonnie Adams; Treasurer, Dora Shartell; Critic, Myrtle Hood; Marshal, Clara Long; Board of Directors, Harriet Vaudivert, Minnie Copeland, Olive Long.

September 19.

A large number of Websters waited impatiently for the time to be called to order by Vice-President Bishoff. J. B. Norton led in prayer. The elected officers were inaugurated. The debate was, "Why Should We Vote for McKinley, or Why for Bryan?" Bishoff and Allison took the "stump" for McKinley. They claimed the tariff issue was more important than the monetary; the tariff kept up the expenses of the government; we also need protection on wool to help the sheep and goat industry. It was further argued that we now use more silver than any other country except China and India; besides, the cheap silver would drive the gold out of circulation. The Demo-Pops were accused of trying to over-ride the Supreme Court with a new income tax law. The benefits of reciprocity were cited. The Bryan side was presented by Chase and Harvey. Silver, the paramount issue, was discussed. Silver is not produced, but found, hence not so liable to over-produce.

tion. The United States is an exporter of silver. An appeal was made to return to the money of our constitution. We have as good a right to remonetize silver as did they to demonetize it. The working of silver mines gave thousands and thousands employment. Gold is controlled by syndicates, and the people are ground by its power. By that missionary equalizer, the income tax, all are compelled to share the burden taxes. McKinley was beaten by the decision of the Society. Next Mr. Young introduced the Webster Quartet. D. C. Miller gave a good declamation, and it was well appreciated. F. H. Myers got out the Reporter with the motto, "Remember thyself whoever thou art;" some beautiful, original and fabulistic stories appeared. R. B. Mitchell gave us a discussion on the "pro and con" of attending political meetings. Business occupied the Society's time till adjournment in the dark. F. Z.

September 19th.

The hall was well-filled with visitors and Alpha Betas, when Vice President Clare Wilson called them to order. The program opened with congregational singing, followed by devotion by Lucy Cottrell. The new officers were then initiated and Mr. Shull kindly responded to the call for "inaugural" by thanking the Society for the confidence it had placed in him by making him its President. The officers for the ensuing term are as follows: President, C. W. Shull; Vice-President, Grace Dille; Recording Secretary, G. F. Hulett; Corresponding Secretary, Elsie Waters; Critic, Alice Shofe; Treasurer, Kate Zimmerman; Marshal, Anna Streeter. Next on the program was an oration by Grace Dille which was well written and well delivered. R. W. Clothier, on the affirmative, opened the debate on the question, "Resolved, That a Change of the Present System of Spelling to Phonetic would be Desirable." The negative was presented by Clare Wilson. The discussion on both sides was lively and interesting. The names of C. K. Rogers and Maud Zimmerman were presented for membership. They were both elected and Miss Zimmerman was initiated. The Society was then favored with music by a quartet consisting of Messrs. Hulett, Clothier, Rumold, and Shellenbaum. The Gleaner was read by May Pierce. Its motto was:

"The man who seeks one thing in life, and but one,
May hope to achieve it before life is done;
But he who seeks all things wherever he goes
Duly reaps from the hopes which around him he sows,
A harvest of barren regret."

After recess the program was opened with a duet by Misses Etta and Ella Barnard, accompanied on the piano by Phrona Channell. A short time was spent in extemporaneous speaking, in which quite a number of the members took part. After the usual business, the Society adjourned. E. L. W.

September 19th.

In the absence of the President, the Hamilton Society was called to order by Vice President Hall. Prayer was offered by E. O. Farrar. After the reading of the minutes the new corps of officers were installed. The following took the oath of office and entered upon their new duties: President, W. L. Hall; Vice-President, C. B. Ingman; Recording Secretary, A. D. Whipple; Corresponding Secretary, G. F. Farley; Treasurer, B. F. Durant; Critic, H. M. Thomas; Marshal, T. E. Thompson; Board of Directors, O. E. Noble, G. G. Menke, H. McCaslin, Wm. Poole, and Wm. Anderson. In response to repeated calls for inaugural, our new President assured us of his devotion to the Society and his hopes for its future, in language which impressed all as coming from the heart. He closed by asking the hearty cooperation of the Society, to make this term's work a profitable one, in both social and literary advancement. After receiving Ernest Rhodes as a member, the Society introduced an innovation in the form of a political convention, in place of the regular program. The Society resolved itself into a convention of delegates of the "Universal Amity Party," with V. Maelzer in the chair. H. M. Thomas introduced an elaborate set of resolutions and a platform covering all the ills, real and imaginary, pertaining to the "tariff," the "Money Question," "Pensions," "Cyclones," "Old Bachelors," etc. These separate planks were discussed in an entertaining, instructive, and sometimes amusing manner by nearly all present. E. O. Noble and E. Emrick presented their respective candidates for presidential nominee of the great Universal Amity Party, and the program was finished up in approved convention style. After the program, the regular Society officers took their places and the business of the evening was transacted, after which we adjourned, all feeling well pleased with the success of the Society in its new role of the evening. G. F. F.

September 19th.

The gay chatter and bright faces of the Ionian sisters as they assembled in their cozy room gave no token of the cheerlessness without. They were greeted by their Vice President, Miss Houghton, and after the opening hymn all stood while Miss Correll offered an earnest prayer asking divine approval and assistance in Society work. When the roll had been called, the Vice President left the chair, to take her place among the officers to be installed, and returned to it President. In response to a persistent call for an inaugural address, she said that since her duties as Vice President had already called her to the chair, she had hoped to escape this formality, but as they insisted she could only thank them for their kindness and ask their co-operation with her efforts to make the Society work for this term a success. Under the next head, Misses Rehfeld, Minnis, and Smith were elected members of the Society. The opening number of the program was an essay, entitled "Dress Reform," by Miss Paddock. While she urged the necessity of such reform, still she thought the present generation could not hope to see it. Miss Paddock did not anticipate such a radical reform as some

advocate; and whether the so-called "New Woman" would be the one to make the revolution she did not know, but felt sure that such a revolution was not far distant. A vocal solo, by Miss Stingley, was followed by a pretty parody on the "Old Oaken Bucket" by Miss Kneeland. The Oracle was unusually bright and interesting, and the editor, Miss Rhodes, received well deserved recognition and praise from the Critic. Perhaps the most pleasing feature of the program was the piano solo by Alice Perry. The composure with which she performed her part and received the hearty applause of the audience was surprising in one so young. The prompt and unerring responses to Miss Hood's questioning showed that the girls have been looking up on points of order. Miss Vandivert gave, as title to her discussion, "Hazing." At the beginning she drew a sharp line between "college spirit" and the spirit that prompts hazing. The one, love and pride in one's College and classmates, should be encouraged in all schools, but the other, prompted by a brutal desire to torment his fellow students, should be discouraged and prohibited everywhere. Miss Vandivert believed that only the severest discipline could completely do away with hazing, and in this connection quoted the words of President Cleveland concerning this hateful habit at West Point. The following orders presented such a tangle of affairs as to test quite severely Miss Houghton's knowledge of parliamentary rules. However, she proved quite equal to the occasion, and conducted herself with such undisturbed dignity as to make the girls proud of their new President. B. F. A.

Sunday afternoon at three o'clock in the Methodist Church were found about seventy young men, assembled as attendants upon the Y. M. C. A. After singing and prayer, President Fairchild, of the College, gave a talk on the Bible, from both a literary and a spiritual standpoint. He urged upon every young man the importance of studying the Bible, since it is the best literature we have, and is also the guide to Christian living. After the meeting was over, a general handshaking took place, after which we separated to meet again in one week. J. M. P.

KANSAS EDUCATIONAL NOTES.

BY PROF. J. D. WALTERS.

The Chetopa schools have adopted the vertical system of writing.

The Washburn College *Mid-Continent* is now a weekly instead of a monthly.

Prof. Dyche of the State University is expected home from Alaska about the first of October.

Crane & Co. of Topeka have secured the adoption of their books in Allen County and the city of Holton.

The trustees of Emporia College have hired a printer and outfit, and the College work is now done on the College press. *College Life* is issued from there also.

Chancellor Snow of the State University spent the summer vacation on a camping trip in California with a party of Professors from Leland Stanford University.

The schools of Kansas City, Kansas, are teaching the vertical system of writing, and Supt. Greenwood of Kansas City, Mo., is agitating its introduction on his side of the State line also.

One of the questions at the recent teachers' examination was, "What is an elementary sound?" And they do say that one applicant for a certificate answered it thus: It is a sound made in the elementary canal."—*Iola Register*.

Prof. S. W. Williston of the State University has just published a second revised and enlarged edition of his "North American Diptera." Henry Holt & Co. have asked Dr. Williston to write a book on the "Anatomy of the Cat," and he has the matter under consideration.

The protracted school book fight between the American Book Company and Crane & Co., of Topeka, in the Topeka school board is over. It resulted in the adoption of Crane & Co.'s First, Second, and Third Excelsior Readers, and Rand, McNally & Co.'s geographies.

The semi-annual interest upon the permanent school fund of the State amounts to \$208,482.54, apportioned among 496,387 school children, which is forty-two cents per capita. Wyandotte County got the most, \$7,759.92; Shawnee was second with \$5,896.36. The smallest sum, \$56.78, went to Morton County.

At a meeting of directors of the new Afro-American Industrial College held in Kansas City, Kansas, Aug. 5th, John L. Waller was chosen President; Geo. J. A. French, Secretary; and James H. Guy, of Topeka, Treasurer. It is now proposed to establish the College at Cedarvale, and the purchase of the site is consummated.

There is a College out in Western Kansas which advertises the following course of study: "Classical, Philosophical, Scientific, Academic, Normal, Art, Music, Telegraphy, and Business, including Stenography and Typewriting, also a Post-Graduate Course leading to the degree of Doctor of Philosophy." The College is only two or three years old, and additional courses will doubtless be added to meet the urgent demands of its patrons.—*The Midland Monthly*.

Fort Scott College will be reorganized. Prof. John Feslor, for fourteen years President of the Normal College at Stanbury, Mo., and part owner of that school as well as the Normals at Springfield, Mo., and Holton, Kas., with Prof. Frank P. Mayhugh of the Springfield College and Prof. D. E. Sanders, President of the Fort Scott Normal, has purchased

the \$30,000 property of the Kansas Normal College at Ft. Scott. They propose to interest Missouri and Kansas educators and run the College on the co-operative plan.

Prof. C. G. Dunlap, who holds the chair of English at Kansas University, has returned with his wife from a trip of over a year in Europe. He has been away studying, and comes back to begin work with the opening of the fall term.

Science in Agriculture.

Science is doing much for agriculture. Any one who has followed the proceedings this summer of the various scientific bodies must admit this fact. First came the meeting of the Association of American Agricultural Colleges and Experiment Stations at Denver, followed by the grand gathering at Springfield, Mass., of the American Association for the Advancement of Science, the Society for Promoting Agricultural Science, the Economic Entomologists' Society, and the American Forestry Association. At all of these meetings much was reported that had been done by scientific inquiry and methods to promote agriculture. Some of this work is, of course, of a very technical character, beyond the understanding of the common farmer, but the lessons of scientific experiments are being put in such form and language that farmers can make practical use of them. The now familiar methods of combating insect and fungus pests by spraying, preventing smut in grain by treatment of the seed, and numberless other instances, demonstrate the great debt that farmers owe to science. Progress along this line has only begun, and the future is destined to see scientific farming made far more simple and profitable. The application of electricity to practical agriculture is only in its infancy, the latest idea being for an electric weed killer, which shall strike by lightning all such pests as thistles, wild carrot, etc. killing them without injuring grass or other crops. A practical method of applying this idea has not yet been devised, but Dolbear thinks it feasible to entirely eradicate the larger weeds from a whole farm in a day's work under this system.—*Farm and Home*.

College Business.

Loans upon school-district bonds are to be obtained from the Loan Commissioner. Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan. All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. The *INDUSTRIALIST* may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson. Donations for the Library or Museums should be sent to the Librarian, or to Prof. Popenoe, Chairman of Committee on Museums. Questions, scientific or practical, concerning the different departments of study and work, may be addressed to the several Professors and Superintendents. General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary. The Experiment Station should be addressed through the Secretary.

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THE SETTLEMENT OF THE UNITED STATES.

BY PROF. FRANCIS H. WHITE.

IN a series of short articles the writer proposes to trace in outline the progress of settlement across the North American continent. Viewed from any standpoint, it is a wonderful story and worthy of our attention. Heroism, aspiration, faith, compose the warp of the narrative; while toil, hardships, and self-sacrifice form the woof. The space at my disposal will permit but few details and no critical discussion; still it is thought the general view that will be given may lead to better appreciation of what has been accomplished and possibly throw some light on future conditions.

THE LATE DISCOVERY OF THE NORTH AMERICAN CONTINENT.

Only by a stretch of the imagination can we realize that the Western Hemisphere was once unknown to Europeans. So marvelously rapid has been its development, so incalculable the wealth it has produced, so great its promise of future economic and political importance, we have difficulty in conceiving a time when America had no place on the world's maps. Yet that time was not long since.

Why was it the sturdy navigator, the bold adventurer, did not earlier discover this garden spot of the earth, this economic wonderland? Nature seems to have conspired against it. There was nothing to lead Europeans to our shores, no westward-setting currents, no steady winds blowing from Europe to America. Only toward the west did America extend open hands. On the northwest, Alaska and the Aleutian islands almost touch the old world. The great Pacific ocean currents set toward our shore, not away from it, as do the currents and trade winds of the Atlantic, while the Pacific itself, though vast in extent, is not so dangerous to travel as its sister ocean.

At last the time came for withdrawing the veil and revealing a continent immensely rich in resources, and offering opportunities for social and political development to be found nowhere else in the world. Three great inventions had already quickened the life and strengthened the hands of Europe since the forgotten visit of the Norsemen in the year 1000. The compass guided the mariner over the trackless water, even when sun and stars were obscured; firearms were in the hands of the courageous adventurer and the nardy pioneer; the printing press spread the news of the discoveries and aroused great interest in the land beyond the sea.

THE WESTWARD MOVEMENT OF POPULATION.

The progress of the Aryan people westward, which has continued so steadily for several thousand years, is an inspiring sight. What vigor, what resolution, what hardihood have been displayed! Physical obstacles—mountains, rivers, seas—have been passed; forests have been felled, and swamps and marshes drained. Empires and thrones have fallen, and whole populations, with their social institutions, religions, and industries, have been swept out of existence; but always there has resulted a higher, grander civilization than the one destroyed.

The Teuton has been the most active in this movement. At first his work was destructive; he was the barbarian overturning, yet at the same time rejuvenating, a civilization higher than his own. This he did in the parts of the continent of Europe and the British Isles where the Romans had already highly civilized the inhabitants. Soon, however, on the continent, and somewhat later in the British Isles, he was conquered by the religion and the civilization of the peoples he had subdued, and from that time he has stood as the great defender and promoter of civilization. His mission, thereafter, was to drive out barbarism and to flash far and wide the glorious light of civilization. His triumphs were those of industry over indolence, of freedom over slavery, of knowledge over ignorance, of the higher over the lower life.

The Atlantic ocean did not forever stay the feet of the adventurous Teuton. When the way had been found across the unknown sea, he eagerly seized the opportunity to press still farther westward. Englishmen, Germans, Scandinavians—Teutons all, together with the Celtic peoples, the Irish and the Scotch, pushed across the center of the North American continent. At first it seemed that the other Celtic branches of the Aryan family, the French and the Spaniards, would share with the Teutons the rich heritage of North America, but in the long marches these Celts have dropped behind.

STRUGGLE OF THE RACES FOR THE LAND.—THE INDIANS.

When the European nations commenced to explore and settle North America, they found the land already in the possession of a vigorous, war-like people. The North American Indians, though closely united ethnologically, were by no means so much alike politically or economically. They may be divided into three general groups: the savage, the barbarian, and the half civilized. The first were to be found in the Rocky Mountains and the Pacific coast regions north of Mexico; the second, in the balance of North America east of the Rocky Mountains; while the third were located in Mexico and Central America.

The influence of the Indians on the progress of settlement in the United States has been very marked. Stubbornly resisting every foot of the way, holding their own in certain regions even when the white population had flowed entirely around them; sometimes by open war, sometimes by secret attacks, sometimes by alliances with the French, and later with the English, they have greatly delayed the spread of the white population and made pioneer work exceedingly difficult and dangerous. On the other hand, it should be said, the fur trade has always proved very profitable to the whites. Traders explored the unsettled regions and brought back accounts of their advantages, thus inducing settlers to push further west. Nor can too much be said of the great service to the pioneer settlers of Indian corn and tobacco which came directly from the native inhabitants. Without corn, that ideal crop for the newcomers, the settlement of this country would have been much harder and more suffering would surely have resulted. Tobacco, another gift of the Indian, was found the most profitable crop in the southern colonies.

THE SPANISH SETTLEMENTS.

The Spaniards have not played an important part in settling the United States. Still, St. Augustine, San Antonio, Santa Fe, and San Francisco attest their early colonizing vigor, as do numerous minor missions in the Southwest.

At one time, the region for a considerable distance around St. Augustine was brought under Spanish control. Churches and forts were erected, plantations were cultivated, and roads were laid out. Surplus energy was found also for expeditions against colonies of the enemies of Spain. But in Florida, as elsewhere, the Spanish vigor declined, the roadways became overgrown with vegetation and eroded by the elements, the churches and forts crumbled into ruins, the outlying plantations were deserted, Indian tribes threw off their allegiance,—Florida slept. Even the change from Spanish to English authority in 1763, and from English back to Spanish in 1783, did not awaken it. Indeed, for some time after 1819, when the United States secured it, there was no sign of life; only in recent years, with the advent of northern capital and northern people, has this land of sunshine and flowers, of remarkable horticultural possibilities, commenced its great development.

In the Southwest, the Spanish people have been for many years in the same state of "arrested development." Aroused most unwillingly by the shriek of the locomotive and the bustling energy of the Yankee, they are now compelled to stir themselves as never before, and yet it is certain they will become less and less a factor in the region, and must assume the second place, the first being held by the all-conquering Teuton.

THE FRENCH SETTLEMENTS.

Attracted by the fine fisheries around Newfoundland and the Gulf of St. Lawrence, the French, early in the sixteenth century, made frequent voyages to the new world. Interest was aroused in the St. Lawrence region and during this century, and the seventeenth it was quite thoroughly explored. The fur trader and the Jesuit missionary were the first to penetrate the unknown region of the Great Lakes and bring back reports of its advantages. Later, fur trading posts and missions were established in a number of places on the Lakes, and the explorations of the Mississippi followed as a natural consequence. La Salle's far-sighted vision showed him the great future of the Mississippi Valley. No obstacles could deter him, no dangers turn him back, when once he had made up his mind to explore the "great river" and thus obtain for France an unobstructed water-route to the sea, and control over an immense region capable in time of becoming the seat of a mighty empire. His letters on the subject show clearly that he had grasped fully the economic and

political significance of controlling this great waterway.

Though La Salle himself perished miserably before he had completed his task, and in the very effort to found a colony at the mouth of the Mississippi, which he had previously explored, his work was carried on by others. Fur-trading settlements, forts, missions, especially the first two, were scattered throughout this extensive region. Along the St. Lawrence, Quebec and Montreal may be taken as examples of what was accomplished. On the Mississippi and its tributaries we find Vincennes, Cahokia, Kaskaskia, St. Louis, New Orleans; on the Lakes, Detroit. But the region was too vast and the colonizing energy of the French too small for permanent success. There was no such movement of population to New France as to the English colonies. The character of the emigrants, too, was such as to make a vigorous growth unlikely. This character, not originally promising, was made worse by the mixture with the natives. In addition to the full-blooded French and the half-breeds, there were quite a number of slaves, Africans, and Indians, owned by the richer inhabitants.

The French, though they controlled two great highways into the interior of the continent, the St. Lawrence and the Mississippi, were unable to hold their own against the advancing tide of English settlers. Certainly they showed great energy in erecting forts, making alliances with the Indians, and in actual warfare, but all was of no avail, and by the treaty made at Paris, 1763, the French relinquished control of its American colonies and possessions, turning over those east of the Mississippi to England and west to Spain.

Until recent times, the French have formed a very small part of our population. For some years, however, the French Canadians, a most prolific people, have been pushing over our northern border and gaining a foothold in New England and the region bordering on the Lakes. The scattered French settlements along the Mississippi and its tributaries already alluded to, have, since colonial days, become almost completely submerged by the rising tide of Americans that has rolled over them. In Louisiana, however, they have held their own much better and retain a strong influence in business and political affairs.

HOW CAN I MAKE AND KEEP A LAWN?

BY SUPT. J. S. C. THOMPSON.

THE writer, in the course of his experiments in lawn-making, extending over a period of six years, inclines to the opinion that the various treatises on the making of lawns, and their subsequent management, were not written for conditions which confront the hard-working, persistent, patient, yet withal unsuccessful experimenter in the West. Indeed, he is forced to the conclusion that on the sandy river bottom lands a durable sod of blue-grass cannot be grown. On the "second bottom" lands, where the soil is heavier and of a clayey texture, a lawn may be grown with a fair degree of success; but even here it will be found lacking in the essentials of a good turf—dark green color, luxuriant growth, and freedom from weeds.

Several yards in Manhattan were coated last spring with clay, which was in turn covered with a rich black soil, in the hope that moisture might be retained in sufficient quantities to prevent the grass roots from drying out and parching in the hot mid-summer sun. The grass promised well in the spring, as it always does, but bowed its head in submission to the hot wave of August, and made room for its arch enemies, crab-grass and fox-tail, which were not slow in availing themselves of the opportunity to show what they could do in an emergency; but, short-lived pests that they are, they soon ripened and died, leaving the gardener only variegated patches of green and brown to look upon during the pleasant fall months, when a good lawn is really more enjoyable than it is during the early spring or the heated term.

Various seed mixtures, as well as "straight" Kentucky blue-grass, have been tried, the combination of blue-grass and white clover in the proportion of a bushel (fourteen pounds) of blue-grass to two pounds of white clover having given best results. Clover is a great resister of drouth, and spreads while the blue-grass rests in mid-summer; and by the end of the second season covers the greater part of the ground. This is the writer's experience in the light, sandy soil of the bottom lands. On the higher lands, where the blue-grass can be kept growing, the clover spreads less slowly, blending nicely with *poa pratensis* and producing a rich effect, second only to a thick, unbroken turf of blue-grass alone. Clover will of itself cover the ground well the first season if thickly

seeded, and will resist drouth to a remarkable degree; but it does not make a satisfactory lawn, retaining too long the marks of the mowing machine, and is coarse looking, reminding one constantly of a field of young alfalfa. As for the "lawn mixtures" of the catalogues, they are a delusion, in no measure meeting the needs of the western planter. They seem to consist of about equal parts of tender grasses adapted to the heavy soils and humid atmosphere of the East, and coarse, rank-growing plants which convert a door-yard into a forage plat.

Is a permanent lawn on light, sandy soil an impossibility? If so, how may the soil be successfully treated? What is the best grass or grasses to sow? How and when and in what quantities should they be sown? What fertilizer should be used, and how and when should it be applied? Is the application of water in time of drouth beneficial or injurious, according to quantity used and method employed? How and when should the mower be used? How can the insidious crab-grass and fox-tail be eradicated?

Where is our Moses? Who can tell a host of discouraged planters what to plant and how to plant it and how to make it stay planted? Let the wise man who has a theory keep his seat, while the practical gardener, the man who has grown a lawn under the difficulties hinted at, and who can prove it, rises to his feet and gives out the information that will cause a great army of would-be lawn-makers to fall upon him and call him all but blessed.

A BICYCLE COLLECTING TRIP.

BY PROF. A. S. HITCHCOCK.

THE readers of the INDUSTRIALIST will remember that I made a trip by wagon through western Kansas in the summer of 1895. This summer I decided to try a new plan—a bicycle trip. My outfit, from necessity, was very limited. For carrying baggage, I had a luggage carrier to fit the frame; besides this I carried a large bundle on the handle bar, in all about thirty pounds. I carried a change of clothing complete, a revolver (which I did not fire once), matches, medicines, repair outfits, and various other small but necessary trifles, a rubber bicycle cape, a piece of mosquito netting (very important), a bicycle lamp, three-pint canteen, an enamel cloth bag for specimens and my plant digger. I also carried more or less food for lunching, such as bread, Anderson's jams, and condensed milk.

My route passed through the following towns: Wabunsee, Wamego, St. Marys, Topeka, Clinton, Ottawa, Garnett, Iola, Chanute, Erie, Osage Mission, Girard, Columbus, Baxter Springs, Chetopa, Coffeyville, Caney, Niotaze, Sedan, Elgin, Cedar Vale, Arkansas City, Caldwell, Anthony, Medicine Lodge, Deerhead, Coldwater, Ashland, Belvidere, Haviland, Pratt, Kingman, from whence I came back to Manhattan by railroad.

I was of course dependent upon hotels for my accommodations, but was able to carry enough for a meal or two at a time. I kept a can of condensed milk with me and also bread or buns. With these and water, I would make a meal from bread and milk. The bread would soon get so hard that the screw driver and digger were necessary to break it up. I slept out on the ground just a fourth of the nights. The weather was extremely hot all the time I was away, hence I needed no covering at night other than my clothes. I lay on my rubber cape to prevent dampness coming up from below. Twice I was obliged to get up at three o'clock in the morning to seek shelter from the rain, but after the first ten days not a drop of rain fell the six weeks I was out. I collected as I traveled, putting the specimens in my collecting sack and carrying them to the nearest town. Each day I sent a package of green plants to Manhattan by express, and they were pressed after they arrived there. Under ordinary circumstances, I would travel from thirty to fifty miles a day, but if the collecting was unusually good I would stay several hours in a single locality. At Baxter Springs I stayed four days, and did not by any means exhaust the flora then. Although the weather was very warm, I traveled or collected all day, every day I was out except (sometimes) Sundays and a five-day tie-up in Douglas County on account of rain. I had unexpected success in the number of new plants obtained for our herbarium, the southern counties yielding rich returns.

I had no accidents aside from frequent punctures of my tire. These were almost entirely from sand burs.

I met many people who were unwilling to turn out and give half the road. If the road was smooth along the side, I had no objection to turning out, but if the road was too rough to ride, except in the beaten

tracks, it was very annoying. Under such circumstances, I invariably got off and stood in the road until my opponent drove around me.

I created a sensation in every town I passed through. As soon as I alighted, a curious crowd gathered around the machine, felt of the tires, trifled with the lantern, punched the luggage carrier, and asked a hundred questions. As I remember, I was addressed by this remark 438 times: "You are fixed for traveling!" The object which created the most deep-seated, undying, and insatiable curiosity was my plant digger. No one could escape its influence. If he were a pert fellow, he would lose no time in blurring out, "What's that thare thing fur?" I would answer as the whim caught me, probably, "A bed-bug splitter," and explain its use in country hotels. Another might meekly say he didn't want to be curious, but would like to know what use I made of that instrument. If he were an "influential citizen," he would engage me in a pleasing conversation till he thought he had me off my guard, and then refer in an off-hand manner to the subject deepest in his thoughts.

To tell them that it was to dig plants with, was only to add fuel to the fire. It seems to be a fact that ninety-nine out of every hundred people who would gather around me under such circumstances could not conceive of a person doing any piece of work that was not immediately convertible into the almighty dollar. Digging plants! Oh! you sell them for medicine, eh! What under the arching dome do you do with them? To tell them the truth only impressed them more deeply with the conviction that I was lying and that I had some hidden purpose.

The roads through Southern Kansas were for most part bad, either rocky or sandy. The road from Elgin to Cedar Vale is the worst road for its length and importance that I have seen in Kansas. From Caldwell west, I was retarded greatly by sand and the ever-present sand bur. And through this region the question of water began to be a serious one. Through Western Barber county in the gypsum hills there was a ditch of twenty miles without water and not a house in site. A break-down would have been inconvenient.

I cannot take the time to recount all the accidents, incidents, and adventures I had of a fifteen-mile ride by lantern after a hard day's work, ending in a punctured tire, exhausted oil, and a three-mile walk over the rock ballast of a railroad track and a final arrival at Coffeyville at 1 o'clock in the morning; of stopping at a pond to mend my tire, when a bull, aroused by my red sweater, came up behind me and was on the point of tossing me into the water when I discovered him and with becoming celerity removed the offending sweater. I must stop a moment, however, to note an incident which illustrates the entire kindness of some men when contrasted with the selfishness of others. On my way to Erie, I arrived at the Neosho river after dark, only to find that the crossing was by ford and the river high. Stopping at a farm house to inquire about the road, Mr. Leland told me that it would be several miles out of my way to go around by the next bridge. He kindly offered to take me across. He got out his two horses that had been working all day, went a mile down to the river, carried my wheel on one horse while I rode the other, and thus safely forded the river with me.

Brains, the Farmer's Remedy.

Slipshod farming will never again pay in this country, if ever it did. It was not much trouble to farm fifty years ago. Anybody who could hold the plow or a cradle or a scythe, and knew enough to sow and plant and reap at the proper season, could farm. All there was to do was to plant corn and sow wheat and oats and grass seed, harvest and market them. The animals that were bred did not amount to much anyhow. In the east, the local butcher would come around and buy the calves, and as a cow was a cow, it did not make much difference how long she lived. The business was dead easy as far as management went. It was then all work and no management, but now the management is the principal thing. The farmer must think, and think hard. He finds it necessary to diversify his crops more than ever, and he is often at a loss to decide in which direction to do it. He has brains to compete with both on and off the farm. Bogus butter, cotton seed oil, and adulterations of every one of his products that can be adulterated are placed side by side with his productions in the market, and it is of no use for him to grumble about it. While he is grumbling the other fellow gets the money. He must not grumble, but think and plan. He must recognize the fact that agricultural pursuits, like other lines of business, have their complications, and that nothing on earth but the exercise of the gray matter in his head will unravel them.—*Farmer's Voice.*

Calendar.

1896-97.
Fall Term—September 10th to December 19th.
Winter Term—January 5th to March 27th.
Spring Term—March 30th to June 10th.
June 10th, Commencement.
1897-98.
Fall Term—September 9th to December 18th.

To School Officers.

The College Loan Commissioner has funds now to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioner and the State Agricultural College. Address C. R. Noe, Loan Commissioner, Leon, Kan.

GENERAL LOCAL NOTES.

Prof. Mason writes in the *Kansas Farmer* on "Budding the Peach."

The Virginia creeper covering College buildings is taking on its fall garb of purple and gold, which must be seen to be appreciated.

Prof. Hitchcock has gone to the eastern counties of the State on a collecting tour of a few days. He will gather in the fall crop of weeds in that region.

The Regents and Faculty, after a session of two hours on Monday evening, were glad to accept Mrs. Kedzie's invitation to refreshments in another room. Post-graduate girls presided at the tables, while girls of the Third-year Class served.

Prof. B. F. Fernow, head of the Forestry Division of the U. S. Department of Agriculture, inspected the experiment in forestry in progress on the College farm Saturday morning. He proposes to extend the experiments by planting upon the bluffs about Manhattan a trial plot.

The Fourth Annual Session of the Kansas Irrigation Congress will be held in Great Bend, October 15, 16, and 17. The College will be represented by President Fairchild, in "A Fundamental Problem in Irrigation;" Prof. Hood, in "The Pump Problem," and Regent Hoffman, in "Raising Wheat by Irrigation."

The following students visited Topeka last week for one or more days: Messrs. G. McDowell, N. M. Green, P. Fox, E. V. Hoffman, H. J. Finley, E. B. Patten, H. A. Martin, A. A. Paige, C. M. Paige, D. Aikin, Mize, Yenawine, Benedict, H. Corliss, Wilkinson, Purcell; Misses Perry, Bayless, Barnard, Houghton, Edith Perkins, Elenore Perkins, Forsyth, Shick, Trumbull.

The Young Women's Christian Association of the College has appointed leaders for the fall term as follows:—

Oct. 3. Lucy Cottrell.	Nov. 7. Grace Stokes.
" 10. Gertrude Lyman, (Missionary).	" 14. Josie Finley, (Missionary).
" 17. Convention.	" 21. Kate Zimmerman.
" 24. Clare Wilson.	" 28. Inez Manchester.
" 31. Minnie Spohr.	Dec. 5. Eva Gill.
	" 12. Sophronia Channel, (Missionary).

The College Library has just received, with the compliments of Mr. G. G. Gage, of Topeka, a copy of the beautiful memorial volume, "The Battle of the Blue," dedicated "To the Survivors of the Second Regiment, K. S. M., and the memory of those who died." A limited edition of 250 copies has been published by Mr. Gage for distribution to the survivors, families of the dead, and public libraries. It is elegantly printed and illustrated with views of the battle, the heroes, and the monument erected by Mr. Gage at Topeka.

President Fairchild on Saturday afternoon delivered the first of the series of Chapel lectures by members of the Faculty planned for this year. "Rambles in Paris" interested the body of students, as well as numerous visitors, being recollections of a short visit in the summer of 1895. The description of the people and their customs, the buildings, boulevards, and other places of interest to the visitor, though brief, showed close observation on the part of the traveler, and gave the hearers something of an insight into the life of the gay Parisians, who labor diligently during the short working hours that they may have the night, or the greater part of it, for amusement.

The College Cadet Band and College Orchestra are fully organized in good working order, and promise excellent music with further practice. The instrumentation follows: Band—B-flat clarinets, F. O. Woestemeyer, J. A. Conover; E-flat cornets, W. Hoffman, C. Masters, L. H. Thomas; B-flat cornets, T. E. Thompson, O. M. Madison, L. Warren, K. Hofer, E. C. Umdenstock, C. H. Sanford, D. G. Wilson; E-flat altos, B. R. Brown, C. M. Buck, A. J. Pottorf, Ed Oman; B-flat tenor, J. L. Stein; B-flat baritone, R. H. Brown, B. R. Johnson; B-flat bass, O. E. Noble; E-flat tuba, E. M. Amos; snare drum, W. H. Patterson; bass drum, J. M. McCreary. Orchestra—Violins, R. H. Brown, B. R. Brown, R. W. Clothier, A. Culp, P. Fox, Marion Gilkerson, E. House, H. W. Royer, Olive Sheldon, Josephine Wilder; viola, Lorena M. Helder; cello, Minnie Blachley; double bass, Prof. J. D. Walters; clarinets, J. A. Conover, T. E. Thompson, cornets, K. Hofer, C. H. Sanford; horns, W. Hoffman, M. R. Johnson, J. L. Stein; tuba, E. Amos, snare drum, W. H. Patterson; piano, Gertrude Rhodes.

GRADUATES AND FORMER STUDENTS.

Ada Rice, '95, was a visitor on Saturday.

J. D. Riddell, '93, is a practicing physician at Enterprise.

A. D. Rice, '92, is preaching in the M. E. Church at Lamar, Colo.

Nine post-graduate students teach in classe this term, as follows: Phoebe Haines, H. N. Whitford, G. L. Christensen, T. W. Morse, S. R. Vincent, Ivy

Harner, Maude Gardiner, Florence Corbett, C. W. Pape, Con Buck.

C. D. McCauley, '96, is working at the carpenters' trade in Topeka.

Wm. Towne, Second-year in 1890-91, is married and lives in Kansas City.

Maggie Carlton, '96, attended the Chapel lecture Saturday afternoon.

G. C. Hall, '96, teaches near Hoyt, with the INDUSTRIALIST to keep him company.

W. M. Wright, '87, and Sarah E. Cottrell-Wright, '94, rejoice in the birth of a son.

C. F. Doane, '96, visited College on Saturday. He is teaching in Pottowatomie County.

Dorothy is the name of the daughter that gladdens the hearts of F. A. Waugh, '91, and Alice Vail-Waugh, at their home in Burlington, Vt.

Board Meeting.

The board of Regents was in session from Monday afternoon till Tuesday evening, all the members being present except Mr. Hoffman, who was detained by business. The evening session of Monday was given to a joint meeting of the Board and Faculty, in which the condition and wants of the several departments, both present and prospective, were carefully presented. The greater part of the time of the several sessions was taken up in discussing the biennial report of the Board, and agreeing upon the needs of the College to be presented at the next session of the Legislature.

An invitation to send a delegate to the Fifth National Irrigation Congress, to be held at Phoenix, Arizona, was received, and the President of the College was authorized to appoint a delegate, provided no expense be charged to the College funds. It was decided that two delegates should be sent to the meeting of the Association of American Agricultural Colleges and Experiment Stations, at Washington, November 10th, one of whom shall be the President of the College, and the other a member of the Station Council.

The following immediate and special wants were provided for: Quarterly expenses of the Station, as estimated by the Council; Military Department, chevrons, etc., \$10; Department of Music, metronomes and piano stools, \$22; Department of Industrial Art, measuring tools, \$5; Department of Household Economy, kerosene stove, \$20; Department of Physics and Mathematics, meter rules, \$2; Department of Botany, chart support and map, extending collections, model flower, total, \$156.50; Horticultural Department, apple stocks, seeds, repairs of tools, charts, and dark room, \$70; Library, letter-press case, \$5.

The Loan Commissioner was authorized to invest in a single issue of school bonds in Kay county, Oklahoma, if in his judgment the investment is in every way good.

A vote of thanks was passed for the portrait of Hon. Joshua Wheeler presented by Mrs. Wheeler.

Upon recommendation of the Station Council, Mr. George L. Clothier was appointed assistant in Botany, to succeed Mr. J. B. S. Norton, resigned, at a salary of \$43 a month. The resignation of Miss Isabella R. Frisbie, of the place of assistant in Sewing, was accepted, and Miss Bertha Winchip was appointed her successor, at a salary of \$30 per month for nine months.

President Fairchild was directed to consult the collector of Internal Revenue with reference to using some apparatus for redistillation of the alcohol used in the museum.

A recommendation of the Faculty that "provision be made as soon as practicable for giving a one year's course in reading German as an optional study, open to post-graduate students and students of the extended course, in order to meet the needs of those who wish to make special study in the sciences," was agreed to.

Authority was granted to issue a duplicate diploma to Mr. C. S. Marty, his having been lost in the mail.

The committee appointed to draft the biennial report of the Board, Regents Fairchild, Hoffman and Daughters, was continued, with authority to embody the wants already presented in the report, in bills to be introduced at the opening of the next Legislature.

The Board adjourned to meet on Tuesday, January 12th, 1897, at 3:30 P. M.

Rules Concerning Annuals.

The following rules concerning Annuals have been adopted by the Faculty for the guidance of the Societies in preparing their public work. The regulations do not differ much from those that have been in force, but it is thought that the work of the Societies and the Faculty Committee can be made more systematic by having them in definite form:—

1. All programs must be in the hands of the Committee on Public Exercises six weeks before the date of annual.
2. All orations, addresses, and plays must be submitted at least three weeks before date of annual.
3. All music must be submitted at least two weeks before date of annual.
4. Society papers must be completed and in the hands of the Committee one week before date of annual.
5. All orations, addresses, and declamations must be rehearsed before rhetorical instructors.
6. All music shall be under direction of the Professor of Music.
7. The Chapel will be open for rehearsals on afternoons only.
8. There must be a full rehearsal of the program

before the Committee not later than two days before the date of annual.

COLLEGE ORGANIZATIONS.

Student Editors.—W. B. Chase, Emma Finley, E. Shellenbaum.

T. M. C. A.—President, S. J. Adams, '98; Vice-President, G. D. Hulett, '98; Recording Secretary, O. S. True, '98; Corresponding Secretary, J. M. Pierce, '98; Treasurer, R. B. Mitchell, '99.

Webster Society.—President, W. B. Chase; Vice-President, J. B. Norton; Recording Secretary, F. Zimmerman; Treasurer, C. Masters; Critic, R. J. Peck; Marshal, C. D. Lechner; Board of Directors, R. W. Bishoff, S. B. Newell, R. B. Mitchell, C. C. Jackson, P. K. Symms.

Ionian Society.—President, Winifred Houghton; Vice-President, Emma Finley; Recording Secretary, Jessie Bayless; Corresponding Secretary, Bonnie Adams; Treasurer, Dora Shartell; Critic, Myrtle Hood; Marshal, Clara Long; Board of Directors, Harriet Vandivert, Minnie Copeland, Olive Long.

Alpha Beta Society.—President, C. W. Shull; Vice-President, B. Dille; Recording Secretary, G. D. Hulett; Corresponding Secretary, Elsie Waters; Treasurer, Kate Zimmerman; Critic, Alice Shofe; Marshal, Anna Streeter; Board of Directors, Misses Channell and Pierce, and Mr. Rummold.

Hamilton Society.—President, W. L. Hall; Vice-President, C. B. Ingman; Recording Secretary, A. D. Whipple; Corresponding Secretary, Guy F. Farley; Treasurer, B. F. Durant; Critic, H. M. Thomas; Marshal, T. E. Thomas; Board of Directors, O. E. Noble, Chairman, H. McCaslin, Secretary, G. G. Menke, Wm. Poole, Wm. Anderson.

September 26th.

Owing to a change in time of meeting from 8 to 7.30 P. M., which was not well understood, the President of the Hamiltons faced a goodly number of empty chairs when he rapped for order. Prayer was offered by J. W. Adams. Owing to the absence of the Chairman of the Board, the orders for balloting on candidates and initiation were passed and the program of the evening was taken up. H. McCaslin tendered an interesting declamation entitled "The Golden Girdle of the Globe," in which he portrayed commerce binding together all the nations of the world. F. O. Woestemeyer introduced Messrs. Pottorf and Rogler, who favored the Society with a violin and cornet duet, and responded to a hearty encore. In the debate, "Tact versus Influential Friends," G. G. Menke and L. H. Thomas ably defended tact, bringing up examples, in school and out of school, where tact may be applied. M. C. Adams and B. F. Schultze upheld the friends and cited instances from the early days down to the present campaign, where the influential friend had the power to change the destiny of man. C. B. Ingman in an amusing manner recited the trouble of Mr. Brown and the stove pipe. O. E. Noble, as editor, presented the Recorder; motto, "Do not know so much about things you are not quite sure about." The editorial was fraught with good advice and sanctum trouble. The body of the paper was, as usual, interesting and entertaining. The program was closed by H. W. Rogler with a select reading. The critic in his report scored the debaters and upper classmen for lack of energy. The society then returned to the order of initiation and J. F. Howe and L. M. Clark were received as members. Under the head of extemporaneous speaking, nearly all the members discussed divers topics of interest to the society. The society adjourned by call for the orders of the day.

G. F. F.

September 29th.

The Ionian Society was called to order by the President, Miss Houghton, and after the opening song Miss Lyman led in prayer. Roll call showed but few absent or tardy members. Miss Jessie Bayless, in her original story, gave a humorous account of a new invention, an invention which rivalled and even surpassed any of the wonderful inventions of the past year. It was not a machine by which a mental impression could be photographed, but by which a mental impression could be made; for example, if one wished to get a lesson, all that would be necessary would be to place the machine in contact with the text-book and also with the forehead of the student, and the knowledge sought after would be his. She thought the machine should be recommended to certain persons not in college, but having no particular reason for not being there. The extemporaneous speaking was conducted by Miss Emile Pfuete. All of the girls who were called upon responded with short talks on topics which she assigned them. Miss Maelzer's piano solo was enjoyed by all who heard it. The question under discussion was "Music or Science, which is the better civilizer?" The affirmative was well argued by Miss Pritner. The negative was presented by M. ss Adams. Miss Ary Johnson read a bright and entertaining paper. Had we the space, a synopsis of the articles published there would be a pleasant addition to this report. After Miss Pfuete's vocal solo Miss Tacy Stokes told the dream of a very naughty little boy in her usual pleasant manner. A very quiet business session was followed by the Critic's report and roll call with quotations. This last order was unusually interesting, as most of the girls responded with "Treasured thoughts from fields of fiction."

B. F. A.

September 27th.

Three taps and a rattle settled the Websters for business. After roll call, Mark Wheeler offered prayer. On the second attempt S. B. Newell was inaugurated as member of the Board. The following persons cast their lot with the Websters and became loyal members: L. Poston, L. M. Chase, T. C. Melbert, C. R. Nelson, H. L. Goddard, O. O. Osborn, J. R. Davidson, A. M. Ferguson, A. S. Berry, C. R. Sanford. Debate, "Resolved, that the Faculty was not justified in compelling the students to answer questions about the flag raising last June." C. H. Stoke-ly and J. M. Pierce argued that there was no direct ruling of the Faculty to prohibit this; other Colleges concede the right of letting the Seniors raise a flag on Class day. The forcing of one man to tell upon his fellows is against all law and humanity; no man

would tell. The Fourth-years did not pull the flag down, but the rowdies created the disturbance. J. E. Trembly and C. Wheeler for the negative, stated that the student would "rule or be ruled;" the Faculty consider it not necessary to make a special rule for every little thing; these same Seniors participated in the flag-raising the year before; the spirit of boisterousness must be kept down; the boys were given their diplomas after doing the mischief. The affirmative won the question. S. B. Newell gave us bass solo, but would not respond to an encore. The applause told how Geo. McDowell pleased us with his humorous reading. R. T. Nichols' thoughtful and earnest declamation was "Using of Time." Zimmerman gave a little discussion on "Our Special," a large number of members participating. The society busied itself with business until adjournment F. H. Z.

September 26th.

At the usual hour President Shull called the Alpha Beta Society to order. All joined in singing a selection from the Chapel books, with Marion Gilkerson at the piano. Miss Channel led in devotion. Miss Culp then entertained us with a well-rendered piano solo, after which Florence Harling was installed as a member of the Board. After the initiation of the new members, J. L. Perry and E. K. Rogers, J. M. Westgate presented an oration in which he gave an interesting description of his first day of school teaching. Another piano solo was then given by Alvira Remmele. The society showed its appreciation by hearty applause. "The Christian and the Atheist" was the subject of Jennie Needham's selection, which was read in a pleasing manner. In an essay, Fanny Noyes gave an interesting account of her pets. The next piece of music was a duet by Misses Channel and Waters, Miss Waters accompanying on the guitar. The debate was on the influence of Uncle Tom's Cabin and Ramona, the book written by H. H. Jackson in defense of the Indians. P. H. Rader and Cassie Dille argued the affirmative. Florence Harling and Josephine Finley spoke for Ramona. The argument was well sustained on both sides. By vote of the Society the negative was given the question. The Gleaner, read by Sophronia Channell, was an interesting number, and some of the selections remind us that "our poets" are still with us. After recess, R. W. Clothier opened the program with a vocal solo, Marian Gilkerson accompanying on the piano. Under extemporaneous speaking, something new was introduced. An old-fashioned spelling match afforded amusement, as well as instruction, for a short time. We were reminded that spelling may yet claim some attention from Seniors as well as Sophomores. Grace Dille and Clare Wilson were last on the floor. In preparing our programs, it is always well to remember that "variety is the spice of life and something out of the ordinary adds life to the last part of the session, which may become tiresome to those not interested in the business that must be transacted at each session. The business session was quite long, so it was quite late when the adjournment hour came. E. L. W.

The regular meeting of the Y. M. C. A. was held Sunday afternoon, with E. O. Farrar as leader. The topic for consideration was, "Christian Growth," taken from 2nd Peter, 1:1-12. Some of the thoughts presented were: "Don't stop on virtue; if we have brains, we may get knowledge; if we have knowledge, we need patience and Godliness with folly and ignorance, for so an entrance shall be administered unto you into the everlasting Kingdom." A missionary class has been organized to meet Sunday afternoons after the devotional meeting. The study this fall will be the lives of prominent missionaries. J. M. P.

Accessions to the Library.

Quarterly Journal of Economics, Vols. 2, 3, and 10.
Eclectic Magazine, Vol. 126.
Atlantic Monthly, Vol. 77.
Century Magazine, Vol. 29.
Scribner's Magazine, Vol. 19.
Arena, Vol. 15.
Review of Reviews, Vol. 13.
Erythea, Vols. 1, 2, and 3.
American Journal of Sociology, Vol. 1.
Nineteenth Century, Vol. 39.
North American Review, Vol. 162.
Chemical News, Vols. 71 and 72.
Berichte der Deutschen Botanischen Gesellschaft, Vol. 13.
Revue Generale de Botanique, Vols. 3, 5, 6, and 7.
Traite de Botanique, Vols. 1 and 2.
Embryology of the Amentiferæ, Part 1, Margaret Benson.
The following accessions have been made to the Station Library:—
Bulletin Societe Botanique de France, 1854 5 6.
Theory of Horticulture, Lindley.
Collectanea ad Botanicam, Chemiam et Historiam Naturelem, Vols. 1, 2, 3, and 4, N. J. Jacquin.
Yearbook of Department of Agriculture, 1894-95.
Horticulturists' Rule Book, 1889, L. H. Bailey.
Bushberg Catalogue, 1883.
Handbook of Experiment Station Work, 1893.
Familiar Lectures on Botany, Mrs. Almira H. Lincoln.
Photo-engraving, Carl Schraubstadter.
Drugs and Medicines of North America, J. U. & C. G. Loyd, Vols. 1 and 2.
Handbook of the Grasses of Great Britain and America, J. Henderson.
Forest and Tree Culturist, Fuller.
Lindley's Horticulture, Downing & Gray.
Sixth Biennial Report of State Board of Agriculture, Kansas, 1887-8.
British Grasses, Curtis.
Fourth Biennial Report of Kansas Horticultural Society, Vol. 20.

Introduction to Systematic and Physiological Botany, Nuttall.

Odlade Trad och Buchkar, Laurell.
Proceedings of the Iowa Academy of Science, 1893, Vol. 1, pt. 4 and 1894, Vol. 2.
New York State Museum of Natural History, 1882.
Metaspermæ of the Minnesota Valley.
Grasses of the United States, Bulletin No. 63, Dep't. of Agriculture, Vasey.
Botanical Division, Dep't. of Agriculture, Buls. 7 9, 10, and 11.
Botaniker—Adressbuch, J. Dörlfer.
Sylloge Flora Europæ Nyman.
Supplementum, Nyman.
Bulletins from Laboratories of Natural History, Iowa, Vols. 1 and 2.
Experiment Station Record, Vols. 1, 2, 2, 4, 5, 6.
Consular Reports, Vols. 44, 45, 46, 47, 48, 49.
Le Monde des Plantes, Vols. 2, 3, 4.
Venezuela, Rojas.
Die Pilze Deutschland, Vol. 3. Rehm.
Zeitschrift für Pflanzenkrankheiten, Vol. 5, 1893.
Botanisches Centralblatt, Vols. 49, 50, 51, 52.
Bulletin Denison University, Vol. 1, Herrick.
The Nursery Book, Bailey.
Key to Cadonia (blue print), Sargent.
Proceedings of the American Society for the Advancement of Science, Vols. 39, 40, 41, 42, 43, 44.
Costa Rica, Guzman.
Formations Anomales, Gerard.
Die Flora der Ägyptisch-Arabischen Wüste, Vol. 1.
Silloge Fungorum, Vols. 9, 10, 11, Saccardo.
Flora de la Mayenne Leveille.
Epilobium, Trelease.
Deutschlands Gräser, Jessen.
Rivista di Patologia Vegetale.
Indian Species of Cyperus, Clark.
Systematic Arrangement of Australian Fungi, Alpine.
Zeitschrift für Wissenschaftliche Mikroskopie, Vol. 12, 1895.
Statistica Botanica Della Toscana, Caruel.
Michigan Flora, Beal & Wheeler.
Rumex Trelease.
Minnesota Botanical Studies, 1-8.
California Vine Disease, Pierce.
Flora of West Virginia, Millspaugh and Nuttall.
Klima und Blatt in der Regis Alpina Jungner.
Grasses of the Southwest, Vasey.
Transactions of the Wisconsin Academy of Science, Vol. 8, 1888-91.
Bulletin de la Societe Botanique de France' Vols. 4 and 5.

Better Farming Necessary.

Time was when the farmer was certain of a good yield of wheat for the sowing. When the soil was rich in fertility and the insect enemies were less numerous. Now every up-to-date means and method must be adopted to insure anything like a fair yield. The ground must be put in fine condition, the very best of seed used, the soil well fertilized and the seeding done in a proper and careful manner. The time for the simplest methods of husbandry is past, the present calls for the highest type of skill and good judgment. The grade of success depends greatly upon the mental equipment of the farmer for his chosen line of production. He must study the plan how to supply fertilizing materials for his crops at the least expense; the proper rotation of crops, so as to use to the best and most economical advantage the plant food in the soil, in the purchase and handling of improved machinery; in preparing the seed bed; in economical harvesting and in proper feeding the crop and the kind of animals to feed for out the largest net returns.

Fruits and Flowers on the Farm.

Surrounding the home with fruit and flowers and making everything as attractive as possible will aid very much in keeping the boy, and the girl for that matter, contentedly on the farm. A little time spent in helping the "women folks" fix up the lawn and flower beds, mow the weeds in the front yard and garden and orchard fences, will help to brighten the faces of the farmers' helpmates. It is decidedly wrong to arrange the work upon the farm or in the house to such an extent that a little time cannot be devoted to these home-making and health-giving environments. A writer on this subject says: "We have a vineyard that begins to ripen its fruit about the first of August, when there is a certain amount of languor and listlessness in the atmosphere, a time when fevers are apt to take root in the system, and when everyone feels more or less run down. But since our vineyard has been bearing, and we can go to it of an early morn before breakfast and eat the fresh, sweet, ripe grapes we desire, there comes a revived feeling, breakfast tastes better, and the system is toned up for the day. It is one of the wise provisions of nature to ripen grapes just at the time of the year when they are best suited to the health and appetite. We urge the planting of vineyards and other small fruits. A fruit garden is of greater necessity, in so far as the health and happiness of the family are concerned, than the corn field. The peasants of Spain, it is said, eat fruit more than anything else, yet they are noted for their strength and vigor. Fresh fruit is filled with the very essence of the life-giving principle. It is nature's storehouse of the most beautiful and pleasant elements of the soil and air, such as are bound to impart renewed strength to the consumer. It is beauty and vitality combined and condensed. How much more of happiness and pleasure there is to be sure in the home that is surrounded by beautiful flowers, and fresh sweet fruits! How superior in every respect is such a home in which to raise our children compared to the barren home of the thoughtless and shiftless, that give no heed to the better and more elevated system of living that comes of cultivating nature in her higher branches.—Farmer's Guide.

Conditions That Discourage.

A correspondent of the *Journal of Agriculture* calls attention to the conditions that discourage agriculture, prominent among which is named loss of fertility of the soil which has resulted from little or no pains having been taken to maintain conditions of soil necessary for the production of remunerative crops. Another discouraging feature is the change of markets, bringing our products into competition with the productions of the cheap labor in all part of the world. He then goes on to say:—

"Improved farm machinery now makes it possible for one man to do the work of three or four, or perhaps a half a dozen, under the old system of farming. And just how the average farmer is to avail himself of all the advantages of improved implements is a difficult problem to solve. He hasn't the money to buy it all, and can't well afford to do without it. Just now more capital is needed on the farm than ever before. The few who can command it seem to be moving along very satisfactorily, but many are at a loss what to do. Then, there is just now, more than ever before, a lack of education felt by most every tiller of the soil who aspires to be a model and successful agriculturist. It is plain to be seen that the farmer of the future must know a great deal more than the great majority of us do now, if he climbs to the top. This demand for brains on the farm is going to raise the dignity of the calling, and it will also sharpen competition, and make it all the more difficult for the average man to even earn a livelihood. The increase of farm literature, farm experimental stations and agricultural colleges all over the land, show a tendency of the times, and we who have learned what we know in the simple school of experience, must get some theory to go along with our practice, or be left behind."

These changes of conditions discourage farmers very much just now, and make it hard to do much more than make a living. A farmer here and there may have already succeeded in adjusting himself to his surroundings, but the great majority have not mastered the situation, and some even have not realized the fact that any great changes are going on.—*Mirror and Farmer.*

College Business.

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Questions, scientific or practical, concerning the different departments of study and work, may be addressed to the several Professors and Superintendents.
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FIVE ORNAMENTAL OAKS.

BY PROF. S. C. MASON.

THE five species to which I wish to call attention belong to the Black Oak division of the genus, having, except in young trees, dark, almost black, roughly furrowed bark on the trunks and larger branches; requiring two years to mature the acorns and having wood of a reddish tint which is not durable in the presence of moisture, and therefore of little value for posts, railroad ties, or building timber. Some of the timber is useful in interior finish work or for furniture, red oak furniture and finish being quite popular at the present time; but the chief economic value of these oaks is for fuel.

In ornamental planting, however, several of them possess great beauty, and might be much more freely used. *Quercus rubra*, L., the Red Oak, is the noblest of them all, becoming a majestic tree of more than 100 feet in height and six feet in diameter. It has fewer small branches than other species of the division, and the smooth, iron-gray bark of the young trees is retained to a much greater age than in others. Its range in North America, according to Professor Sargeant, is from New Brunswick and Nova Scotia to Florida, and westward to Minnesota, Kansas, and eastern Texas.

In Kansas, it is found as far west as the valley of the Blue, scattered along creek valleys in Wabaunsee and Geary counties, but reaching its greatest development in the Neosho and Verdigris valleys of Southern Kansas, seeming to prefer rich but well-drained valley soils and lower uplands, but occasionally found in groups along the cool northern slope of some bluff fronting a small stream.

It makes a very fine upward growth as a young tree, forming a smooth, clean trunk, with long upright branches.

The leaves are only slightly lobed, and of a bright, rich green color. The acorn is large and long, set in a broad but flat and very shallow cup. Altogether, this is one of our most notable and striking native trees.

Quercus Coccinea—*Var. tinctoria* (Gray), while a much less imposing tree, attains a good size on the clay uplands of Kansas as far west as the Blue, and makes a very handsome tree while young. As it grows older, the dying out of the thick lateral branches disfigures it somewhat in a wild state, but this can be corrected in specimen trees by pruning as they begin to fail.

Quercus palustris (Du Roi), the Pin Oak, is found in large tracts along the Marias des Cygnes, Neosho, and other portions of Southeastern Kansas, its range being from Massachusetts to Maryland and westward. It is found in heavy "gumbo" soil, and often where water stands for a portion of the year. The young trees grow erect in a single straight trunk, with numerous horizontal branches, the lower ones of which soon droop, often sweeping the ground. The effect on the landscape of a river bottom filled with a broken, park-like growth of these trees is very peculiar and striking. Young specimen trees in the College grounds are among the most beautiful in our collection. They will be found well adapted to planting in the northwestern portion of our City.

Quercus imbricaria, Mich., the Shingle Oak, extends from Pennsylvania westward through the central States to eastern Kansas, being found in Wyandotte, Leavenworth, and Johnson counties. It differs from all other Kansas oaks in the entire lanceolate, oblong leaf. The trees tend, like the Pin Oak, to the growth of a straight central axis, thickly set with small radiating horizontal or drooping branches. With the abundance of shining rich green leaves, often overlapping, the trees of this species are very handsome on the lawn or in the borders of a group. It prefers rich upland soil to the bottoms, and is well adapted to general ornamental planting. Among mature trees occasional specimens may be found three feet in diameter and fifty or sixty feet high, when the bark of the trunk becomes black and deeply furrowed.

Quercus Phellos L., Willow Oak, or Peach Oak, has much the same habit of growth as the preceding, but the leaves are narrowly linear-lanceolate, and the whole aspect as little like the general conception of an oak tree as can be imagined. Grace and beauty are not usually regarded as characteristics of the oak, but rather sturdiness and ruggedness. Yet the Willow Oak may well be called graceful as a young tree, and for lawn specimens and borders of groups is well worth attention. This interesting oak is not found

within our borders, but has a more southern range, southeastern Missouri being the nearest to us.

In the Dakota sandstones of the cretaceous of Central Kansas, are found preserved the earliest fossil imprints of leaves and fruits of such families of trees as comprise our present forests. Among these are found a few oaks, and it is of interest to note that the leaves are of the same type as the last two species mentioned, having entire margins and linear-lanceolate or oblong leaves.

THE USES OF BAMBOO IN JAVA.

DAVID G. FAIRCHILD, '88, writes from the land of the Javanese, where he is pursuing special study in botany, giving an interesting description of the bamboo and its various uses, many of which will doubtless be new to the average reader. He says:—

"Dear Folks:—I have had it in mind some time to write you a few lines about the uses of the bamboo. I had, of course, often read in books of travel of the wonderful usefulness of this plant, yet it has taken me three months here in the midst of it to make me realize what an influence its properties have had upon this Javanese civilization.

"You are accustomed in America to associate bamboo with fishing poles and a few Japanese trinkets: here you are constantly finding that everything new which strikes your eye is made of some part of this plant.

"I counted fifteen styles of hat on the Djalan Besar, or main road, here the other day. Some looked like brass kettles upside down, others were six feet across and looked like the top of an umbrella minus the handle; some had crowns, others were perfectly flat; some were red, others bright blue, still others covered with tar. I wondered where the natives got the material to make so many and varied styles of head-dress, and on inquiry found they were made of plaited bamboo—in fact a large share of the fashionable Paris bonnets are made in Tangerang, near Batavia, where a Frenchman has established a large factory.

"But if you look closely at the host of strange wagons and still stranger baskets which the coolies carry, you find bamboo everywhere. The short straight stick, at each end of which hangs the basket of goods, be it fish or ladies' drygoods, is made of bamboo. Of course the baskets are of bamboo. You may think you have seen many forms of baskets, but I can assure you five minutes here on the road would convince you you were mistaken. There are square flat baskets, two feet wide and about three inches high, in which living gold-fishes are grown, or rather cultivated, in the flooded rice fields, from young furnished by the Javanese Fish Commission, are brought to market. There are cubical cages filled with chickens, clucking and squealing at a great rate. The chicken is the principal meat producer of the tropics, you know. I eat cold chicken at breakfast, cold and hot chicken in several forms at dinner, and chicken salad, cold chicken again, and chicken stew for supper. Then there are the drygoods baskets of the Chinese. The Chinaman is a wealthy man, and often disdains to carry his own twin basket, but marches on in front, shaking a little baby's rattle made of bamboo, of course, or blowing a horn made of the same substance. These baskets are much more elaborate, often two stories with racks, drawers, and a thousand places to store things. The restaurants, too, are all in pairs and gather seemingly automatically, where there is any excitement. You don't need to hunt for a cafe, for it will follow you if you wish. Iced drinks, fruits of all sorts, hot stews, dried and rattan fish, roots and herbs, and last but not least by any means, cigar stores and sirih shops. One has only to realize what a disgusting habit that is which complicates a stimulation of the salivary glands. I blush with shame when I think that enlightened Americans have taken up a custom so truly barbaric, although their forefathers on European soil had never stooped to similar habits. A sirih chewer in Java and a tobacco chewer have much in common. The former has, however, the disadvantage in that he most always keeps his cud in sight between the lower lip and lower row of teeth.

"But I have not exhausted the kinds of bamboo twin baskets, etc., yet. In fact, I have not time to tell the tenth. One more I must mention, however, and that is the hay vans. A man with a load of hay on his back looks like a big caterpillar. Into triangular frames at both ends of his carrying stick he presses and jams the short-cut fresh grass until it

forms two peculiar looking masses, between which he himself sinks into insignificance.

"Let me continue my enumeration of uses of the bamboo, however, as I shall not finish if I do not. The mat which serves the purpose of a carpet to my room is made of strips of bamboo plaited together. It is one seamless mat covering the whole floor. It is funny to see these immense mats carried through the streets on the shoulder of a coolie. I can't avoid the feeling he is playing hide and seek, as children do under a carpet in cleaning time as it is hung out to beat on the line. Then the walls of the houses are made of similar mats fastened to bamboo posts and braced by bamboo braces and tied on with strips of bamboo. The rafters are made of bamboo, the joists of bamboo, the windows and windowsills, the doors and the door casings, the bedsteads and "springs,"—in fact all but the shingles, which are palm leaves, and some of the main ropes binding braces, or "hip rafters," which are of rattan,—everything is of bamboo. Yes, I forgot, they cut the grass on the lawns here with a bamboo knife and sweep it up with a broom made from the midrib of the cocoa nut leaf.

"I have not yet seen all the utensils of the ordinary native house, but know already that they make knives and forks of bamboo. Wine, or rather lemonade flasks, are of bamboo, as well as the numerous baskets. Most of their musical instruments are either entirely of bamboo or in part constructed of this substance,—flutes, whistles, pipes, stringed instruments, etc.

"Like so many of our impressions of nature gathered solely from the temperate regions, that of construction is one-sided. The child of a mother's nursery is taught to use the building blocks. When he grows older, he learns to drive nails and bore holes into or through solid pieces of wood. The problems set before a little half-naked Javanese boy are quite different, for he deals only with tubes or at most sections of tubes. He doesn't want to know how to drive a nail or bore a hole, for the knowledge of the first he can never use to advantage, and it is much easier to chop a hole in the tube on opposite sides than it is to bore through with a bit. If he wants to fasten a rafter-plate to the corner post of his house, instead of driving nails or spikes down through it into the post, he simply points the post by slanting cuts on opposite sides, making then a notch to receive his tubular rafter plate; and to fasten it, cuts two holes on opposite sides of the post about a foot lower down, runs a straight piece of bamboo through, and binds the whole down with rattan. He needs no saw, either, for his little knife is ample to split, shave, or hack in two, and that easier than saw can do it. As for a chisel, that is wholly superfluous. A mortise in a tube, as any one will easily see on a moment's thought, is simply two holes into it opposite each other.

"Then, too, our idea of the consistency of building material is based upon our acquaintance with woods of northern climates. The building material of the Javanese is as elastic as hickory, but splits easier than pine, and is as tough as the fibres of hemp almost. Take a large internode, and you have a rigid beam or truss. Split it into sections, and you have a steel spring; split it again, and you have a cord stronger than the strongest binding twine. Our northern woods are of like consistency throughout, excepting the sap wood, of course. Bamboo has an exterior filled with silica, and as hard and smooth almost as glass. Knives made of this part cut admirably; in fact, surgical knives such as are used, for instance, in the circumcision, are made of bamboo. I cannot close this letter on this most wonderful of tropical plants,—a grass and yet a tree rivalling the giants of our forests in height,—without relating a story told here to illustrate its usefulness. A naturalist, with his coolies, lost his way and found himself without food or shelter, far from any village. He looked about him and saw that he was in the midst of a big bamboo thicket. The sun set and left him in despair. His coolies, however, cheered him, saying they would soon make him comfortable. But his matches were all gone, he declared. This announcement did not disconcert them, however, for while two of them set to work to build him a house of bamboo, roofing it with their leaves, the other cut two dry pieces from the same thicket, cut a few fine shavings from the one, and rubbing the two pieces rapidly against each other, soon had a mass of burning shavings, and in a short time a crackling fire. From the bases of two large stems he soon made two kettles, which he filled with water and hung over the fire on bamboo cranes. All was now ready but the evening meal. To his astonishment, he saw the cook select from the rapidly growing shoots ($\frac{1}{2}$ meter

in twenty-four hours) of the bamboos near by, the juiciest and tenderest, and cutting it into morsels, throw it into the kettles, in which by this time the water was boiling. Before night had really set in, the traveler was lying comfortably on his bamboo couch, after having partaken of a frugal repast of boiled bamboo as delicious as any asparagus grown in Maryland, and protected from the down-pouring rain by a perfect roof of bamboo and from the wind by the same beneficent plant. When one recollects that all these useful properties are possessed by a plant which has never been found blooming in Java, one cannot but be astonished.

FOREIGN BIRDS IN AMERICA.

BY PROF. D. E. LANTZ.

MANY attempts have been made in the past to introduce foreign birds into this country. In a few instances, notably that of the European house sparrow, the attempts have been successful; but in the great majority of cases the birds have apparently not survived the changed conditions under which they have been compelled to make the struggle for existence. This has been especially true of the different game birds introduced from Europe by the various sporting associations of the New England and Middle States.

A much greater measure of success has attended the bringing of the Mongolian and other Asiatic pheasants to the States on our northwestern coast. In Oregon and Washington, these birds have steadily increased in numbers under careful laws for their protection, until they are now sufficiently numerous in some sections to afford excellent shooting.

These Asiatic pheasants are extremely hardy, but it is doubtful if they would thrive in our interior States, where they would be subject to great extremes of heat and cold. However, it would be interesting to have the experiment of their introduction into Kansas tried. It is probable that they would endure the rigors of our winters better than the heat of our summers, and they might, after all, be well adapted to our climate and surroundings. If so, they would compensate us for the loss of our fast disappearing pinnated grouse.

Is it not probable that our eastern sporting clubs of America have often made the mistake of setting free European birds in the New England States, expecting them to return after migration to the South? Whether they migrate or not is unknown, but it is certain that they were never seen after the first season. Now, would it not be more in accordance with the experience of natural laws to set the birds free in more southern latitudes, where they can endure the winters, and leave them to work their own way north in the course of time. If the birds are migratory, which in the case of any of the gallinaceous birds, I doubt, they will find their way to the parts of our country best adapted to their permanent homes. If they are not migratory, they will enlarge their habitat by degrees as their numbers increase, and at last reach the limits of the country adapted to their wants.

In this connection, it seems to me that there is a widespread wrong impression of the habits of our native quail, or Virginia partridge. Dozens of times have statements been made in *Forest and Stream* to the effect that these birds migrate. This is a mistake. Quails are closely attached to the neighborhood of their natural homes, and do not if undisturbed wander far from them. Lack of food or the pursuit of hunters may drive them a few miles, but this cannot be regarded as in any sense a case of bird migration. Our prairie grouse will wander farther from its home than does the quail; but this is because of its greater power of flight. It is not migration.

The introduction of foreign birds into any part of our country under the idea that they will return to the same neighborhood after migration, is likely to prove a very unprofitable experiment. The European house sparrow is, unfortunately, not a migrant, and so this is one instance of success in the experiment.

THE PROPAGATION OF PLANTS FOR THE HOUSE AND GARDEN.

BY WM. BAXTER.

ARTIFICIAL or vegetative means of propagation are resorted to by cultivators, in order to reproduce and multiply existing cultivated forms of useful or ornamental vegetation in the shortest possible time, while in the case of cross breeding or hybridizing provision is made for the origination of new forms or varieties instead of merely reproducing the parent plant. There are many cases in which seed will not reproduce the parent plant, even if one is never so careful to prevent fertilization; and then recourse

must be had either to cuttings, layers, or divisions by which part of the original plant must necessarily be used, and means are resorted to in order to make them throw out roots. Grafts are cuttings neatly joined to a suitable stock by which they receive the benefit of the roots already formed, and in working order; but it is well known that grafts are frequently changed if worked on other variety as a stock, so it is not so reliable as cuttings.

PROPAGATION BY LAYERS.

This simple method of propagation is generally adopted in the case of low-growing or slender plants, which cannot readily be grown by cuttings, divisions, or seeds. The operation is very simple. A branch or stem of a plant is taken and bent down to the ground and covered with soil; and it is best to put a flat stone on top of the soil to prevent the wind from blowing it off or drying it up. The top of the twig or branch is bent up and allowed to grow. In plants that are hard to root, it is well to cut a slit on the under side of the twig, holding the top in your left hand and cutting toward you. The cutting of the branch causes the sap of the plant to exude and form spongy mass which we call callus, and from this callus the roots are almost sure to start.

There is another mode similar to layering, which is sometimes called propagating in the air. The plant which it is desired to root is cut in a similar manner and a bunch of sphagnum moss packed around it, and when rooted, the moss is cut off with the plant roots and potted.

PROPAGATION BY DIVISION.

This is the easiest and most generally adopted method by which low-growing or spreading alpine and herbaceous plants are reproduced. Bulbs, as snow drops, narcissus, and other gregarious kinds, are also multiplied in the same way. Each separate bulb is a distinct individual plant, although the word multiplied, as used, is scarcely applicable, since no artificial multiplication of plants has taken place. The same number of plants existed in the clump before they were divided. Only by so dividing them they develop themselves more rapidly. Nearly all plants which form low-spreading clumps or masses of root stalks may be divided, either by digging up the plant and pulling it into rooted pieces or by cutting off rooted sections around the sides of the clump. The scaly bulbs of lilies may be pulled apart and planted separately, and most of them when so treated will form separate plants.

There is a class of plants which has thick leaves, called melastomaceous plants, which can be propagated by the leaf; for example, the Rex begonia, and many others that have thick leaves.

Such tender plants as bouvardias, phyllanthus, clerodendrons, aralias, etc., may be reproduced by root cuttings, as may also certain hardy shrubs, and many kinds of roses.—*Paper Read Before the Manhattan Horticultural Society.*

That Broad Tire.

"The difference between a narrow tire and a broad one," said a leading Chicago business man the other day, "is simply that the narrow tire cuts up and ruins the roadway, while the broad tire actually makes the roadway better by its use."

That is surely enough of a difference to make the farmer, who realizes the importance of the transportation question, consider a change, if at present he is using the narrow tire. But one farmer cannot make the road good by his use of the broad tire. There should be an organized movement in every township favorable to the broad tire, which, instead of sinking deep into the roadway and rendering it impassable, serves the purpose of a roller, hardening and making it more smooth.

The broad tire alone will not make good roads, for there are many kinds of difficulties to be overcome, and every mile of roadway offers one or more particular to itself. But in a country of fairly good roads there is perhaps no one thing which will help so to preserve them as the faithful and general employment of the broad tire. It is one of the reforms which lies within the reach of all to assist in, and it is a most important one.

The cost of bad roads to the people of the United States, as estimated by Prof. Latta, of Purdue University, who bases his figures upon the certified experience of the farmers of forty Indiana counties, amounts to 77 cents an acre annually, or \$50 a square mile of farm area. There are 1,000,000 square miles of farm area in the country, which gives \$500,000,000 as the amount annually assessed against the people as a bad road tax—and the farmer pays fully 90 per cent of it. He doesn't get a penny more for his product because he is obliged to haul it over abominable roads!—*Farmer's Voice.*

Calendar.

1896-97.
Fall Term—September 10th to December 19th.
Winter Term—January 5th to March 27th.
Spring Term—March 30th to June 10th.
June 10th, Commencement.
1897-98.
Fall Term—September 9th to December 18th.

To School Officers.

The College Loan Commissioner has funds now to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioner and the State Agricultural College. Address C. R. Noe, Loan Commissioner, Leon, Kan.

GENERAL LOCAL NOTES.

Assistant Marlatt spends the day in Kansas City on business.

Prof. Will deliver a non-partisan lecture on silver legislation at Union Hall, Monday evening, October 19th.

The Printing Department has just turned out eight hundred copies of an eight-page card folder of punctuation rules for the rhetoricals and English classes.

Prof. Mason has lately made some excellent negatives of grape leaves and fruit, the venation of the former showing most clearly, and even the fuzz on the leaf is sharply defined.

President Fairchild and Professor Mason will represent the College at the annual meeting of the American Association of Agricultural Colleges and Experiment Stations in Washington, November 10th.

A box of waste paper was found on fire in the basement of the Main Building, Tuesday afternoon. Janitor McCreary extinguished the flames with a pail of water, and then and there said all waste paper would be burned daily hereafter.

A number of small ditches alongside the cinder walk aid in the prevention of washouts in the pathway, though they have yet to be tested by a "root-soaker and gully-washer," such as has in times past destroyed long sections of the walk.

The four literary societies of the College promise an interesting program for the joint session to be held sometime in November. There is every reason to believe the proposed entertainment should eclipse any annual which has been or may be held.

Mr. J. I. C. Guy, editor of the *Syracuse Republican*, visited his son in College, on Wednesday, spending several hours in the various departments. He found the time all too short for a thorough inspection, but took notes of many things of interest, intending to write an article for his paper.

A circular course of study of the San Bernardino (Cal.) High School is received. N. A. Richardson, '80, is Principal and Professor of Mathematics. If long continuance in office with regular promotion is a proper index of growth, then Mr. Richardson has certainly prospered since leaving his Alma Mater.

While out on a botanizing expedition a couple of weeks ago, Professor Kellerman was thrown from his wheel near Dublin, Franklin County, and received a serious fracture of several ribs. Riding along at a rapid pace he struck a bed of sand, resulting in the fall and injury. Professor Kellerman will, however, meet his classes as usual on Thursday.—*Ohio University Lantern*.

Mrs. M. C. Herdwick, of Blackwell, O. T., anxiously inquires about her son, Frank, whom she thinks to have gone from home seeking a school. He is described as "thirteen years old, rather small for his age, with brown hair and eyes, and dressed in blue cap, light double-breasted coat, dark striped shirt, black knee pants, black stockings, and pointed-toe shoes."

Mrs. Graham attended the conventions of the Christian Church last week at Parsons. She has been State President of the Board of Missions for a number of years, and this year finds her duties more than usually arduous by reason of the serious illness of the Secretary of that body. During Mrs. Graham's absence Agnes acted as housekeeper and kept Secretary Graham and the boys straight.

On October 7th there was celebrated in Galesburg, Ill., the thirty-eighth anniversary of the great Lincoln and Douglas debate, which took place in that city in 1858. Secretary Graham recalls the event with great pleasure, though with a dim recollection, as he was very young at the time, because he had the distinction of being carried upon the shoulder of "the great commoner," and as that was the first time he ever saw Mr. Lincoln.

The State Normal School is to be congratulated upon escaping easily from a fire in its coal-house caused by a carload of damp coal. This College had an exactly similar experiment last spring, when the fire was not wholly extinguished by almost a week of shoveling, and much of the coal was wasted. The penitentiary coal is liable to take fire, especially if fine and damp when put into the pit. We have had a half dozen trials of this kind.

Readers of the *Kansas Farmer* have for many years had the opportunity to consult free of charge a competent veterinarian, namely, Dr. S. C. Orr, of Manhattan, who has held the responsible position of veterinary editor of this paper. The management of the *Kansas Farmer* has been greatly pleased with Dr. Orr's service as a member of its staff, and regrets that in future his engagements will be such that he cannot continue the service. Our readers are fortunate,

however, in that we have been able to secure the services for the future of so eminent a veterinarian as Dr. N. S. Mayo, Professor of Veterinary Science in Kansas State Agricultural College, at Manhattan. Inquiries should hereafter be addressed to him, and will receive prompt attention as heretofore.—*Kansas Farmer*.

The students' pay-roll for September contains the names of 183 students, whose earnings range from 15 cents to \$38 in the month. The aggregate amount paid to these students for the month is \$1146.34, which represents a good many hours of profitable employment that otherwise might have been given to foot-ball or something less profitable. These between-time earnings, though small in many cases, will go a long way towards footing the bills of many who could not attend college without this aid.

The First Division of the Fourth-year Class delivered public orations on Saturday afternoon in the following program: "Benefits of a Political Campaign," R. W. Bishoff; "Improvement in Dress," Fannie Carnell; "The Evils of a Political Campaign," W. B. Chase; "International Bimetallism," F. E. Cheadle; "The Ideal in Character Building," R. W. Clothier; "Through Darkness into Light," Maggie Correll; "Upon the Burial Hill," S. Dolby; "Civil Evolution," R. H. Pond; Music, Vocal Trio, Marie Haulenbeck, Wilhelmine Spohr, Gertrude Lyman.

The Botanical Department has received, this summer, for trial four packages of "ceres-pulver," a fungicide to prevent smut in cereals. It is prepared by Jensen, Director of the Experiment Station at Copenhagen, Denmark. The formula was suggested by the investigation and researches of Professor Kellerman and Mr. Swingle, made while the Professor was connected with the Kansas State Agricultural College. Professor Kellerman now has over one hundred plats of experiments under way, testing the use of potassium sulphide, the principal ingredient of the "ceres-pulver."—*Ohio University Lantern*.

GRADUATES AND FORMER STUDENTS.

Lieut. J. G. Harbord, '86, is at present rustivating under the parental roof-tree at Council Grove.

"Alfalfa, or Lucerne" is the title of Bulletin No. 44 from the Utah Agricultural College Experiment Station, by Prof. A. A. Mills, '89.

H. G. Johnson, '96, called on College friends, Saturday, on his return from the Carnival at Kansas City. He is on the home farm near Assaria.

C. W. Nelson, Second-year in 1895-6, and wife visited College several days last week. They live on a farm near Michigan Valley, Osage County.

Rev. D. E. Bundy ['89] and R. U. Waldraven ['89], both old College students, have been visiting recently in the northern part of the county. Both of them are successful workers in the ministry.—*Manhattan Republic*.

A. C. Peck, '96, writes from Lexington, O. T., where he had charge of putting up buildings and machinery for a large cotton gin. The work is successful, and Mr. Peck gives credit to his training in the College shops.

Andrew Jackson, Second-year in 1894-95, until August 1st last employed as Foreman in the Soldiers' Orphans' Home at Atchison, called at College on Thursday. He left the same day on a bicycle trip through Nebraska, Iowa, and Minnesota to Wisconsin.

The Riley County Educational Association will meet at Riley, October 17. The following graduates have a place on the program: J. W. A. Hartley, '92, address; Jennie R. Smith, '94, solo; W. E. Thackrey, '96, paper, "The Training of the Aboriginal American."

J. E. Payne, '87, writes from Cheyenne Wells, Colo., the Rain-Belt Experiment Station: "The results of this season's work at this station and my observations in the surrounding country are somewhat encouraging. I now have a basis upon which to plan future work. The Board has treated me well, giving me all I have asked. Non-saccharine sorghums, cows, and chickens, in the hands of industrious and intelligent settlers, form a combination which will surely win, even in the 'sunshine region.'"

Entomological and Zoological Notes.

The usual entomological work is in progress in the department. A large amount of new material has been added to the collection and a careful account kept of the plants upon which they were collected. The recent collections are being classified at present, after which they will be placed in the cases for reference.

A number of bagworm cases upon cedar were received from J. H. Stearns of Mound City, Kansas.

Mr. F. F. Crevecoeur of Onaga, Kansas, sends 368 species of insects, asking that they may be named and returned to him. He has the thanks of the department for a number of specimens new to the collection.

About forty specimens of Lower Silurian fossils have been obtained by exchange from Mr. Otto Grady of Ludlow, Kentucky.

Stella V. Kimball, '94, adds a small collection of insects and some alcoholic specimens of mussels, sand fleas, and fiddler crabs collected at Cape Cod, Mass., where a part of her summer vacation was spent.

Mrs. E. D. Goodnow presents a curious lariat made of buffalo hair, to the museum. Other donations are as follows: Fossils by J. B. Norton, C. C. Smith, S. J. Norton, and Mrs. R. H. Kimball; gypsum

from Miss Maud Naylor, Alta Vista, Kas.; spike iron ore, E. C. Stratton, Oregon Co., Mo.; front of buffalo skull and opossum, F. A. Marlatt; mole, C. H. Stokely; Emory's racer, H. B. Forest; centipede from Arkansas, C. P. King; pelican from Oakley, Kan., Isaac Jones.

A number of live clams in the aquarium are objects of study for the zoology class.

Three regular classes, two entomological and one zoological, besides a number of special students, J. B. Norton and F. H. Meyer, in entomology, and C. W. Pape, post graduate, and F. V. Dial and C. W. Hoop, zoology, occupy Professor Popenoe's attention during the forenoon.

Mr. J. W. Metler of Clay Centre, Kansas, who has remembered the zoological department upon previous occasions, now presents 23 trays of Florida shells which he collected upon the coast of the Sanibal Island on the western coast of Florida.

A most valuable and beautiful lot of fossils of ferns and other plants, a souvenir of a vacation trip to Council Grove, add largely to the value of the geological collection. They will be recorded, as many previous gifts have been, as collected by Prof. S. C. Mason. BERTHA S. KIMBALL.

The Proposed Dairy School at the College.

The following dispatch explains itself:—"Topeka, Kas., Oct. 10.—The report of the State Agricultural Department for the quarter that ended September 30 is largely devoted to dairy interests. Kansas has 515,075 milch cows, and the total value of milk, butter, and cheese was \$4,972,445.96. Secretary Coburn claimed that the State could maintain ten times the present number of milch cows. After citing a number of points of superiority of Kansas over other States, from a dairyman's standpoint, Secretary Coburn said: "A properly equipped dairy department at our Agricultural College, adapted to our present requirements, would probably not cost to exceed \$10,000. This sum would be returned to the State a hundred, yes, a thousand fold in the course of a few years, through a resulting increased prosperity. The demand from the thoughtful for such a department is becoming more urgent each year, as the nature and possibilities of dairying in Kansas become more and more apparent. Our sons and daughters who seek a dairy education are now compelled to go to Iowa, Minnesota, Wisconsin, New York, or even to far off Vermont in order to obtain the instruction they desire. If these States find it profitable to invest such sums in order to provide instruction for their young men and women, it would certainly seem to the advantage of Kansas to expend a reasonable amount for a like purpose."

COLLEGE ORGANIZATIONS.

Student Editors.—W. B. Chase, Emma Finley, E. Shellenbaum.

T. M. C. A.—President, S. J. Adams, '98; Vice-President, G. D. Hulet, '98; Recording Secretary, O. S. True, '98; Corresponding Secretary, J. M. Pierce, '98; Treasurer, R. B. Mitchell, '99.

Webster Society.—President, W. B. Chase; Vice-President, J. B. Norton; Recording Secretary, F. Zimmerman; Treasurer, C. Masters; Critic, R. J. Peck; Marshal, C. D. Lechner; Board of Directors, R. W. Bishoff, S. B. Newell, R. B. Mitchell, C. C. Jackson, P. K. Symms.

Ionian Society.—President, Winifred Houghton; Vice-President, Emma Finley; Recording Secretary, Jessie Bayless; Corresponding Secretary, Bonnie Adams; Treasurer, Dora Shattell; Critic, Myrtle Hood; Marshal, Clara Long; Board of Directors, Harriet Vandivert, Minnie Copeland, Olive Long.

Alpha Beta Society.—President, C. W. Shull; Vice-President, B. Dille; Recording Secretary, G. D. Hulet; Corresponding Secretary, Elsie Waters; Treasurer, Kate Zimmerman; Critic, Alice Shofe; Marshal, Anna Streeter; Board of Directors, Misses Channell and Pierce, and Mr. Rummold.

Hamilton Society.—President, W. L. Hall; Vice-President, C. B. Ingman; Recording Secretary, A. D. Whipple; Corresponding Secretary, Guy F. Farley; Treasurer, B. F. Durant; Critic, H. M. Thomas; Marshal, T. E. Thomas; Board of Directors, O. E. Noble, Chairman, H. McCaslin, Secretary, G. G. Menke, Wm. Poole, Wm. Anderson.

October 3rd.

Hamilton Hall was well filled when the President rapped for order. After roll call, the Society was led in devotion by W. O. Peterson. J. O. Tulloss, F. H. Reager, and W. Sargeant were received as new members. The program opened by R. W. DeArmond with an essay on the lead pencil. The Society was then favored with a guitar solo by T. E. Thompson, who responded to the hearty encore with another well-rendered selection. E. L. Hougham gave the news of the week. S. J. Adams, in his essay on college and town societies, ably brought out the importance of identifying one's self with the societies about him. The question, "Is heredity more influential than environment in the development of man?" was discussed ably and at length by E. Emrick and R. M. Potter on the affirmative, and R. M. Philbrook and A. C. Smith on the negative. The Society decided in favor of the negative. After recess, the program was reopened by F. E. Johnson, who read about the troubles of the bashful young man. Messrs. Rogler and Leath were requested to close the program with music. They complied with two well-rendered and well-received selections. After the Critic's report, the members took a hand in the general criticism. The evening's work was highly complimented, and a few timely suggestions made as to changes for improvement. A half dozen names were proposed under the head of propositions for membership, and then business of the evening was taken up. Before adjournment, the Society returned to the order of initiation to receive Mr. Dobbs. G. F. F.

October 3rd.

The Ionian girls were called to order by Miss Houghton, and all united in singing. After prayer by Miss Spohr and roll call by Miss Bayless, Misses Waugh, Minis, and Cooper were elected and initiated. The order of new business was immediately

called for, and Miss Bertha Spohr was appointed as committee to meet like committees from the other societies to consider the advisability of having a joint session of the four societies. The orders of the day were called for, and the program was opened with an instrumental solo by Tacy Stokes. Miss Brady presented numerous news items which perhaps many of the girls had been too busy to read during the week. Miss Copeland read a very interesting and somewhat amusing "Original story" entitled "My first Rabbit Hunt." The listeners were left somewhat in doubt as to whether the story was wholly fiction or really an incident in the life of the author. After one of Miss Perry's delightful vocal solos, the Oracle was presented by its editor, Dora Shartell. The parliamentary "quiz" was conducted by Miss Thralckell and responded to by Misses Pfuetze, Stewart, Correll, Paddock, Hall, Copeland, and Barnes. Another piano solo was rendered by Miss Rhodes. "Civilization of the American Indian," though a time-worn subject in itself, proved most interesting as handled by Miss Bertha Olson in her discussion. This discussion closed the program, and was followed by a live business meeting. The most prominent question under consideration was the improvement and rearrangement of the Society Hall. One name was proposed for membership. The session closed by the usual roll-call with quotations.

B. F. A.

October 3rd.

President Chase started the session for the Websters with the gavel. After roll call, O. S. True led in prayer. The following candidates went through the mysteries of initiation, and can now give the grip and password: C. R. Nelson, J. R. Davidson, W. E. Miller, H. A. Holzer, D. S. Burgess, A. K. Browning, C. B. White, and C. Thurber. The political cloud was brewing, and it first burst forth with reverberating fury in the debate, "Resolved, that the issue of fiat money will be the final solution of the money question." Mr. Long, for the affirmative, thoroughly discussed the subject of money and politics, then he steamed up and went in on politics and money. Mr. Peck, of yellow badge raiment, championed the other cause, giving facts and figures in abundance, and he proved things satisfactory to the gold bugs. Mr. Turner, for a young politician, made some good arguments; he has a chance of becoming a veteran in this line. M. D. Snodgrass made us think of a bright future in finances if things would only work right. The leaders in closing made us believe each was right, and we guess both were. The Society thought the affirmative taught the best political lesson. A new feature in music was introduced by H. P. Nelson—an accordeon solo. He responded to an enthusiastic encore. "Why the student should be interested in politics," was essayed by A. G. Wilson, who gave an encouraging and entreating plea for the future. The Reporter was edited by T. M. Robertson, and his motto was, "If you have built castles in the air, your work is not lost: there is the place for them; just put foundations under them." The paper had a political atmosphere, and the poetry was a pleasing feature. The discussion by L. P. Keeler was, "Should the boys have more study room?" The affirmative answer was well shown. Under the head of business, a joint committee was appointed to help draft a program for the joint entertainment; this will not partake of the nature of an annual, but will be a new and novel feature. Adjournment.

F. Z.

October 3rd.

At the usual hour a large number of Alpha Betas and visiting friends assembled for the fourth session of the term. When called to order by President Shull, all joined in the song; after which Miss Pierce led in devotion. The first number on the program was a well-rendered piano solo by Miss Nora Reed. Messrs. R. Wood, Thompson, Eastman, and Garrison then cast their lot with the Alpha Betas. Miss Florence Martin gave a short selection from James Whitcomb Riley. All enjoyed the instrumental duet, violin and cornet, by Messrs. Rogler and Pottorf, two Hamilton friends. They were heartily encored and responded with "Home Sweet Home." The Society then showed its appreciation of their kindness by extending them a vote of thanks. Mr. Dye, in an essay, told us of the oil wells of Kansas. Alice Shofe presented in an earnest and pleasing manner an oration in which she spoke of man as a debtor. All are debtors in one sense. There are debts which can never be paid, debts to fellow-men for their noble lives and works, and above all, we should remember the great debt to Him whose infinite power rules the universe. Carrie Painter presented her "Road Side Thoughts" in an original poem. The "Gleaner," edited by Miss Monroe, was read by Josephine Finley; motto, "Things of great value are done up in small bundles." The selections were suited to him who on wisdom or humor is intent. After a short recess, all were highly entertained by Lucy Cottrell's special class in voice culture. That the "entertainment" was a success, was shown by the hearty applause. The extemporaneous speaking was lively, and many spoke on the several questions presented. "Who Shall We Vote for, and Why?" "Advantages of Coeducation," and "Benefits Derived from a Course in Agriculture" seemed to be of most interest. After the usual business, the Society adjourned, feeling that the session had been an interesting one.

E. L. W.

The Y. M. C. A. was addressed Sunday afternoon by Mrs. C. F. Wilder. The subject was "Work," and was treated from a practical standpoint. The parable of the talents (Matt. 25: 14-30) was read, and also other references relating to the subject. Some of the thoughts presented were: We should do our work well, both the seen and the unseen; for our reward is according to our work. If we are not faithful in the things which are least, we shall never have a chance

to show our faithfulness in greater things. There is work set for each one of us to do, and if we do our best, the satisfaction derived therefrom will be our reward in heaven. We are saved, not by faith alone, but by works. We must work for the good we can do, and not that we may boast.

J. M. P.

Weather Report for September, 1896.

BY C. M. BREESE, OBSERVER.

One of the coolest Septembers on our record, and one with plentiful rainfall well distributed. Pastures are good at the close of the month, having been affected scarcely at all by the frosts of the 28th and 29th. Wheat is coming up nicely, and the ground being in good condition it should go into the winter in good shape. Apples a fair crop. Some corn being cribbed.

Temperature.—The mean temperature was 63.77°, which is 3.80° below normal. There have been 31 warmer and 7 cooler Septembers on our record. The highest temperature was 97°, on the 8th; the lowest, 33°, on the 28th—a monthly range of 64°. The greatest daily range was 44°, on the 30th; the least 3°, on the 17th. The mean daily range was 23.47°. The warmest day was the 8th, the mean temperature being 83.50°. The coldest day was the 19th, the mean temperature being 48.25°. The mean temperature at 7 A. M. was 56.67°; at 2 P. M., 75.27°; at 9 P. M., 61.56°. The mean of the maximum thermometer was 77.37°; of the minimum, 63.9°; the mean of these two being 65.63°. The first killing frost occurred on the 28th.

Barometer.—The mean pressure for the month was 28.844 inches, which is .034 inch above normal. The maximum was 29.187 inches at 7 A. M. on the 22d; the minimum, 28.436 inches, at 2 P. M. on the 8th; monthly range, .751 inch. The mean at 7 A. M. was 28.870 inches; at 2 P. M., 28.816 inches; at 9 P. M., 28.846 inches.

Cloudiness.—The per cent of cloudiness was 40.56. This is 4.86 per cent above normal. The per cent at 7 A. M. was 46.67; at 2 P. M., 40; at 9 P. M., 35. Five days were entirely cloudy; three were five-sixths cloudy; three were two-thirds cloudy; three were one-half cloudy; three were one-third cloudy; one was one-sixth cloudy, and twelve were clear.

Precipitation.—The total rainfall was 5.06 inches. This is 2.01 inches above the normal. The table following shows monthly rainfall for 1896, the normal, and departure from normal:

	Normal.	1896.	Departure from Normal.
January	.77	.31	-.46
February	1.06	.56	-.50
March	1.30	.87	-.43
April	2.72	5.49	2.77
May	4.13	7.41	3.28
June	4.43	2.63	-1.80
July	4.73	5.39	.66
August	3.61	2.26	-1.35
September	3.05	5.06	2.01
Totals	25.80	29.98	4.18

Wind.—The wind was from the south twenty-three times; southeast, seventeen times; north, sixteen times; northeast, fifteen times; east, eleven times; southwest, five times; northwest, two times; west, one time. The total run of wind was 6535 miles, which is 487 miles below the average. This gives a mean daily velocity of 217.83 miles, and a mean hourly velocity of 9.08 miles. The highest daily velocity was 496 miles, on the 8th; the lowest, 77 miles, on the 14th. The highest hourly velocity was 35 miles, between 10 and 11 A. M., and noon and 1 P. M., on the 8th.

The following tables give comparisons with preceding Septembers:

September.	Number of Rain.	Rain in inches.	Per cent of Cloudiness.	Prevailing Wind.	Mean Temperature.	Maximum Temperature.	Minimum Temperature.	Mean Barometer.	Maximum Barometer.	Minimum Barometer.
1858...	1	1.10	...	...	69.62	98	50	...	...	...
1859...	6	1.82	45	S	65.86	96	36	...	...	...
1860...	2	1.35	20	SW	72.44	100	43	...	...	...
1861...	12	8.06	45	S	68.23	95	41	...	...	...
1862...	4	4.15	19	S	71.70	97	51	...	...	...
1863...	6	7.3	45	S	72.56	95	39	...	...	...
1864...	6	2.30	45	SW	73.58	104	42	...	...	...
1865...	4	1.23	...	...	74.21	90	49	...	...	...
1866...	10	6.23	44	S	61.37	90	40	...	...	...
1867...	6	3.20	27	S	64.12	92	49	...	...	...
1868...	7	5.72	54	S	60.28	87	34	...	...	...
1869...	5	1.83	40	SW	61.26	83	41	28.86	29.25	28.50
1870...	9	4.57	62	SE	67.29	92	52	...	...	...
1871...	4	1.92	38	NE	66.43	91	39	...	...	...
1872...	9	5.70	31	S	65.01	96	37	...	...	...
1873...	4	1.85	45	SW	65.97	98	38	...	...	...
1874...	7	4.53	52	SW	65.16	98	39	28.74	29.06	28.42
1875...	3	2.85	46	SW	65.88	97	36	28.88	29.13	28.64
1876...	6	3.11	36	SW NW	64.99	93	25	28.81	29.10	28.48
1877...	2	1.52	36	SW	70.50	93	38	28.76	29.03	28.53
1878...	5	3.22	30	S&SW	67.13	93	37	28.78	29.14	28.28
1879...	4	4.30	33	S	66.43	92	44	28.74	29.02	28.40
1880...	7	2.52	33	SW	64.96	84	40	28.68	28.95	28.36
1881...	4	4.92	32	SW	72.12	101	36	28.56	28.80	28.19
1882...	2	1.20	27	SW	70.30	102	46	28.70	28.96	28.40
1883...	12	1.26	37	E	63.10	94	43	28.72	28.98	28.50
1884...	5	3.33	60	SW	72.65	93	48	28.51	28.82	28.17
1885...	8	4.38	44	NE	63.06	95	42	28.61	28.93	28.23
1886...	5	1.14	29	SW	71.71	101	39	28.93	29.24	28.48
1887...	8	6.88	31	S	66.95	94	38	29.06	29.35	28.75
1888...	3	2.86	17	...	64.69	96	34	29.04	29.26	28.70
1889...	4	1.92	36	S	63.19	101	30	29.06	29.39	28.78
1890...	7	3.24	43	E	63.04	95	30	28.95	29.32	28.55
1891...	3	1.46	16	SW	69.94	97	31	29.02	29.19	28.76
1892...	3	3.6	8	S	69.67	97	37	28.89	29.12	28.58
1893...	6	2.45	23	SW	69.00	109	34	28.80	29.19	28.27
1894...	7	3.34	34	S	69.20	104	35	28.80	29.24	28.44
1895...	3	1.02	18	S	73.05	105	29	28.78	29.23	28.39
1896...	11	5.06	41	S	63.77	97	33	28.84	29.19	28.44
Sums	210	118.93	1322	...	2635.4	...	691.52	...	...	...
Means	5	3.05	35.7	S	67.57	...	28.81	...	...	...

WIND RECORD.

September.	Total Miles.	Mean Daily.	Maximum Daily.	Minimum Daily.	Mean Hourly.	Maximum Hourly.
1889	5409	180.30	416	73	7.51	27
1890	5907	196.90	526	67	8.20	32
1891	7791	259.70	434	99	10.82	31
1892	7022	234.40	560	56	9.77	32
1893	7283	242.76	529	101	10.11	41
1894	6642	221.40	393	66	9.22	27
1895	9589	319.63	634	79	13.32	37
1896	6535	217.83	496	77	9.08	35
Sums	56178	1872.92	...	...	78.03	...
Means	7022	234.11	...	...	9.75	...

Making Improvements Cheaply.

A correspondent writes that in his country town quite a number of improvements of a substantial and somewhat expensive character are in progress, and he argues from this that somebody must be making money. This does not follow. The probability is that they have made some money in the past; that they need the improvements for the future, and that they are taking advantage of depressed conditions to make the improvements with the past accumulations. In depressed times, material, labor, and everything entering into the construction of buildings are low in price. More can be done with less money, and a man who is in a position to build at such time not only gets more for his money and whether unconsciously or intentionally, is a benefactor to his locality as well, since he furnishes employment, both in the preparation of the materials and in the actual construction, at a time when employment is particularly needed because it is particularly scarce. We hardly think there are very many ordinary kinds of business, or indeed any that are not hedged around by a trust or do not partake of the character of a monopoly, that are making much money with which to branch out in building. If there are any that need improvements for their future work, and have means earned in more prosperous times with which to make them, they are lucky, and so also is the community in which they are located.—Homestead.

College Business.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka.

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Donations for the Library or Museums should be sent to the Librarian, or to Prof. Popenoe, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study and work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

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THE PUMP PROBLEM.*

BY PROF. O. P. HOOD.

IN any device for using power, the necessary and the unnecessary losses should be matters of careful study. If the losses due to friction are properly located in any machine, one is able to more surely select a good machine or improve an old one. Besides locating friction losses, it is frequently of importance to know the actual amounts of these in the aggregate, and also at each step in the operation. There are some devices where even large losses are of secondary importance.

The losses of heat in the modern threshing engine are so large that, if a marine engine were to be so wasteful, the whole carrying capacity of the steamer would hardly hold sufficient coal to carry her across the big pond. In a threshing engine, the requirements necessary for a very economical device would be impracticable on account of lack of simplicity. In the running of a small steam pump for boiler feed purposes, economy of steam is entirely secondary to reliability, while in pumps for large water systems, we find the greatest refinements for the economical use of steam. In the pump problem, as presented by wind mill irrigation, the question can be asked, are the power losses in the average pump of sufficient importance to be carefully considered? This will depend, first, on what the aggregate losses are, and second, on the amount of power at our command. If but ten or fifteen per cent of the power is usually lost, it may be fairly assumed that a large part of this is unavoidable, and the room for improvement would be very small. But if the losses are usually from forty to sixty per cent, it may be possible to greatly increase the output by increasing the efficiency but a few per cent. If a pump is being run with a friction loss of sixty per cent, its efficiency will be but forty per cent. If replaced by a pump of sixty per cent efficiency, the output of the pump will have increased fifty per cent. If the power at command is large and cheap, or the requirements small, it may not be of great importance if fifty per cent of the power is not returned in water lifted. In using a windmill and pump for watering stock, it is seldom that the mill is asked to pump all it can, and a large friction loss is not important.

One has to study the windmill problem but a short time to find that at best the mill gives an average small power, a power such that fractions of a horse power are of importance. The windmill has, however, that chief element of success, "keeping everlastingly at it." But its power is certainly not such that the irrigator can waste any large portion of it if such waste is avoidable. At certain most critical seasons of the year, even a large mill must gain its power from winds of low velocity. In four successive years, thirty-three per cent of the possible power of a mill in July was from winds below fifteen miles per hour, and in August for the same period over forty-five per cent was from these low velocity winds. In these critical months, when the total power of a mill is less than half of its average for the year, it is most desirable that the power be used in the most efficient manner. When one hunts for definite information, expressed in figures, as to just how much and what the losses are in the class of reciprocating pumps used for irrigation or similar work, one finds little having a bearing on the question. After considerable hunting, the opinion of one engineer was found to be that the efficiency of these pumps seldom rose above fifty-eight per cent. That is, but fifty-eight per cent of the power given to the pump was returned in water lifted. The forty-two per cent of waste was distributed in friction of the water in the pipes, resistance encountered in passing restricted valve openings, eddy currents, resistance of entry of water into each new volume of different capacity from that left, excessive movement of valves, piston friction, etc. It was not known what facts lead to this figure of fifty-eight per cent. Small steam pumps have been very carefully tested by eminent engineers, and give an efficiency of about fifty per cent for the water end of the pump. Some valuable measurements have been made showing how much water certain combinations of windmills and pumps could deliver. Though valuable for another purpose, they do not help in our pump problem.

The great variations in these figures show that the secret of windmill practice is in a very careful load-

ing of the mill. No other motive power I do know which is so sensitive to an ill-proportioned load. In some cases, the substitution of a new form of pump has increased the output of the mill a number of times its former rate. This cannot be all credited to the efficiency of the pump, but may be largely due to the fact that the new load is better proportioned to the ability of the mill. I believe I am right in saying that just what the fortunate loading for any mill is not known, except in a very general way. The favorable load depends upon the design and weight of the mill, on its regulating method, and largely on the distribution of wind velocity in the various months. If loaded to take full advantage of the winds of March, April, and May, it will give but very little in July and August, but its total pumping effect will be greater than if loaded the year around at a suitable load for July and August.

It seems desirable to make such tests of the elements of this problem separately as shall enable one to combine them with some degree of certainty as to the result. To this purpose, the State Board of Irrigation has with the College arranged a pump-testing plant. A ten-horse power engine has been set apart to furnish power. From a shaft driven by the engine, a machine is belted which runs a crank driving a vertically reciprocating crosshead. This crank is adjustable, giving any stroke from zero to twenty-four inches. The crosshead is arranged to take a pump rod in the usual manner. The machine driving the crosshead is so devised that all the power furnished by the belt is transmitted through a piston pressing on oil carried in a cylinder. The pressure on this oil is greater or less, according as the pull on the belt is greater or less. This oil pressure is transmitted to a device similar to the well-known steam engine indicator, where a pencil is moved across a paper. A card is given a motion similar to the belt, and the pencil traces automatically a diagram which represents the power transmitted by the belt. In this way, the power given to the pump mechanism can be accurately measured. In the pump rod, another device of new design is placed, which gives the stresses in pounds in the pump rod at each part of the stroke. This also shows the power taken by the pump, and the diagrams make possible comparisons of the effect of different valve arrangements as to the shock given the rod, etc. The two diagrams from the two different devices check each other in amount.

This pump is arranged as any pump would be in an open well, with any lift up to forty feet. Arrangements are made to test air under pressure to one hundred feet. The water lifted is measured and the total useful work of pounds of water lifted through the measured height divided by the power furnished to the pump in the mechanical efficiency of the device.

KANSAS FARMERS' INSTITUTES, 1882-1896.

BY SECY. I. D. GRAHAM.

IN the Secretary's office may be found a map of Kansas which shows, by colored marks, the various places in the State at which farmers' institutes have been held since their inauguration in 1882.

The College authorities desired that the objects of its endowment should be accomplished in every possible way. They realized that there were to be found, in every part of the State, men and women who are in hearty sympathy with these objects, and who, by reason of advancing years and the responsibilities of life, and are unable to matriculate as students, would most gladly welcome any efforts put forth to bring within their reach the influence of knowledge. And so, in 1882, long before the University extension idea had reached the height of its popularity, there was inaugurated this system of "College extension," which we name farmers' institutes. These institutes are simply meetings of the farmers and their families with representatives of the College for mutual discussion and information upon matters of interest in farm and home life. Interested attendance is the only requisite to membership in an institute, and all may share in the proceedings.

The Faculty began this work by assisting in six institutes each winter, and, with the growth of the College and the demands upon it for work in this line, this number has grown to about twenty each year. Wherever an institute has been held it is expected that another will follow. Indeed, it is true that the Faculty are obliged to deny requests from most desirable locations quite often for the reason that the settled policy of the "greatest good to the

*Extracts from a Paper read at Fourth Annual Session of Kansas Irrigation Congress at G. Bend, Oct. 16.

greatest number" can be better subserved by holding institutes in new and untried places.

During the past sixteen years there have been held a total of 159 institutes, which were distributed among the various counties as follows: Brown, Jefferson, Johnson, Nemaha, and Russell, seven each; Finney and Shawnee, six each; Franklin, Linn, and Reno, five each; Marion, Osborne, Pottawatomie, Rooks, Wabawance, and Washington, four each; Clay, Cowley, Ellis, Ford, Kearney, McPherson, Marshall, Montgomery, Osage, Ottawa, Riley, and Trego, three each; Allen, Cloud, Coffey, Crawford, Douglas, Ellsworth, Geary, Greeley, and Sherman, two each; and Anderson, Atchison, Barton, Butler, Chataqua, Cherokee, Decatur, Dickinson, Harper, Harvey, Jackson, Jewell, Miami, Mitchell, Phillips, Republic, Rice, Sumner, Wallace, one each.

It will be seen that institutes have been held in fifty-six counties of the State, and that the following counties have not held such meetings in connection with the College: Barber, Bourbon, Chase, Cheyenne, Clark, Comanche, Doniphan, Edwards, Elk, Gove, Graham, Grant, Gray, Greenwood, Hamilton, Haskell, Hodgeman, Kingman, Kiowa, Labette, Lane, Leavenworth, Lincoln, Logan, Lyon, Meade, Morris, Morton, Neosho, Ness, Norton, Paynee, Pratt, Rawlins, Rush, Saline, Scott, Sedgwick, Seward, Sheridan, Smith, Stafford, Stanton, Stevens, Thomas, Wichita, Wilson, Woodson, and Wyandotte; a total of forty-nine.

The fact that several institutes have been held in a given county is not to be interpreted as meaning that these have all been held in the same town or neighborhood.

As the applications for College aid in the institutes to be held during the coming winter come in, it is to be hoped that many of them will come from counties wherein no institutes have yet been held. Were the great benefits to be derived by all parties from these meetings fully appreciated, there can be no doubt but the applications would be even more numerous than they have been in the past.

TRICHINOSIS.

BY PROF. N. S. MAYO, D. V. S.

MANY people, especially stockmen, are liable to consider animal diseases from a financial view alone, and do not realize the importance which such diseases may have upon the public health.

Animal diseases may effect the public health either by the transmission of the animal disease to human beings, or by means of poisons which are formed in the bodies of animals suffering from some germ disease.

It is well known that such poisons are formed, and when the flesh of animals affected with such a disease is used as food, the poisons in the flesh may have serious effects upon an individual partaking of such food.

One of the most important of animal diseases, because of its relation to mankind, is *trichinosis*. This disease is quite common in the pig, and is caused by a minute parasitic worm. The adults are barely visible to the naked eye, called *trichina spiralis* (Owen). The young trichinae are microscopic in size, and are found coiled up in the muscular tissue (lean meat) of pigs, each parasite being enclosed in a little cyst composed of salts of lime. When meat thus affected is eaten by man or other animals, provided the meat has not been cooked sufficiently to destroy the parasites, the digestive juices dissolve the lime cyst and the parasite is set free, "alive and kicking" in the stomach or intestines of an unsuspecting victim. In two or three days, the trichinae become mature and the females give birth to large numbers of young. Each adult female, it has been estimated, is capable of producing from 1,000 to 15,000 young. These young trichinae are very small and active, and they begin at once to bore their way through the walls of the stomach and intestines, and getting into the blood vessels, are carried to all parts of the body. It is during this stage, while the young trichinae are boring their way through the body, that the symptoms of trichinosis are exhibited. There is usually a high fever, associated with soreness of the muscles and irritation of the bowels. The symptoms of trichinosis in man have been described as a "combination of typhoid fever and rheumatism." If the person attacked by the parasites does not die from the effects of their migration, the young trichinae become encysted in the muscular tissue surrounded by salts of lime, and in this condition may remain inactive many years or throughout the remaining lifetime of the host.

Not all the young trichinae that are brought forth alive in the digestive system of the host bore their way into the tissues. Many of them, probably thou-

sands, pass out with the excreta from the digestive system, and in this way the soil or water about out-houses may become the source of infection for pigs, rats, or mice. It is probable that pigs become infested in this manner or from other pigs, or rats, and their excreta; while the common source of infection for man is the meat of the pig.

Of the symptoms of trichinosis in pigs, but little is known. There is said to be a disinclination to move, high fever, diarrhea, and loss of control of the hind legs, but these symptoms are often associated with other diseases. It is probable that trichinosis does not effect pigs as seriously as human subjects. All of the pork of this country intended for export is examined microscopically for the presence of these parasites, a small piece of meat from the "tenderloin," "mid riff," and neck being taken, experience having demonstrated that these muscles are favored localities for the parasites.

Thorough cooking renders harmless all pork which is infected with this or other parasites. The writer once had an opportunity to assist at an autopsy on a man who had died from trichinosis, and it was found that these minute worms had penetrated into the marrow of the bones. This person stated, previous to his death, that his favorite meat dish was "rare pork chops."

The percentage of hogs infected with trichinae may reach fifteen per cent in some cases, depending on the age of the animals and the conditions under which they have been kept, the percentage being highest usually in hogs fed on slaughter house refuse. It is probable that the meat diet and large number of rats usually found about slaughter houses contribute to this result.

The Price of Success.

The statement of the Rev. Dr. John Watson, better known by his literary name of Ian Maclaren, that he does not write easily, but in a laborious way and with much correction, is an interesting and significant one. He does not say anything about inspiration as a source of strength and facility, but places stress mainly upon "an infinite capacity for taking pains." His charming stories of Scottish life read as if they might have written themselves, so to speak, but in fact they represent much hard and careful labor, not to call it mental drudgery. This is not a new revelation, or an exceptional confession, on Mr. Watson's part, but simply a repetition of the testimony of all successful authors who have spoken upon the subject. The idea that literary genius comes to a man in the form of a perfect gift, and all that he has to do is to place it in connection with pen and paper and let it have its way, pleases the imagination, but is a great mistake of fact. All of the masters in literature have been industrious craftsmen, seeking by all available means to produce the best results. They had genius to begin with, of course, in the sense of being endowed with certain controlling tastes and tendencies, but their genius would have been useless to them without the discipline of toil and perseverance. In other words, they had to learn their trade, and to win their triumphs by a due measure of honest and strenuous endeavor.

This holds relatively good in all other lines of human effort and achievement. The soldiers and statesmen, the great artists and musicians, like the great writers, have all been indebted to their discipline and their diligence for their distinction. They did not have greatness thrust upon them, and did not secure it by any occult favor of fortune. They were not permitted to surpass other men by the mere force of some inherent and indefinable advantage which exempted them from ordinary laws and obligations. The necessity of severe and constant exertion was as binding upon them as upon anybody else. They were obliged to apply their energies through established processes, to give close attention to the details of their undertakings, to improve opportunities according to practical rules, to make their way step by step instead of going to the top at a single bound. There are cases in history that seem to indicate signal success by accident or preordination, but when we study them and take account of all the circumstances, we learn that hard work and wise calculation really brought the victory to pass. That which appears to have been easily accomplished, or to have resulted from a lucky happening of the unexpected, is found to be actually attributable to assiduous and methodical personal service.

It is the same with those whose natural abilities are of a lower order, and whose best possible achievements are correspondingly smaller. They succeed only to the extent that they are disposed to work for success. No friendly unseen influence ever intervenes to prevent the failure of a man who neglects his chances and expects to have prosperity bestowed upon him without giving anything in exchange for it. The doctrine of compensation, which is also the law of even-handed justice and common fairness, runs through the whole economy of life. Nothing that is worth having is to be had at a bargain. It must be paid for in a requirement of steady and painstaking application. There is no short cut to coveted honors and profits. The only feasible route is a long and toilsome one, and only those reach the end of it who are willing to travel slowly, patiently, and practically. Those who tell us that there are easier ways of succeeding in the world, that we can theorize natural

facts out of sight, and legislate ourselves into prosperity and happiness, either do not know what they are talking about, or do not mean what they say. There is no fiatism in the philosophy of the universe, but only sound values and earnest rewards. All schemes and assertions to the contrary are mere dream-stuff, and the less we have to do with them the better it is for us in every respect.—*St. Louis Globe-Democrat.*

Inexpensive Shrubbery.

Many farmers, says the New York *Ledger*, are deterred from planting ornamental shrubs and trees by the supposed necessary expense. They have a variety of large and small fruit, but these are part of the economy of the farm and represent money well invested. Fruit trees and plants are longer in coming to maturity than annual crops, but are just as sure in the end, and the wise farmer is fully aware that apple orchards and strawberry beds pay better interest than county banks.

But with shrubbery it is different. The farmer may realize that ornamentation has something to do with determining the value of his place, but it does not come home to him so forcibly as the apple orchard and vineyard, and he puts it off from year to year, until money is more plentiful or he has more time, and the bare surroundings of his house are left to the charity of the small annuals which his wife and daughters raise from seed or are able to carry over from year to year by means of slips, and perhaps to the occasional sweetbrier or peony root, procured from a flower-loving neighbor. It is not that the farmer dislikes shrubbery or is niggardly with his money. He is rarely caught up with his work, and there are always important things waiting his attention—things that take money and time and are of prime importance to the prosperity of the farm. And, then, ready money is undeniably scarce, even to the average farmer who is ahead; new horses or tools or buildings are needed, and the small accumulations go to provide them, and the shrubbery is put off and off, and finally is lost sight of.

If the farmer knew how cheaply his grounds could be ornamented I am convinced there would be fewer unsightly yards in the country. Even the boys and girls, with little trouble, could surround the house with beautiful trees and shrubs and clambering vines, and the cost would be only a few days work each year. There is scarcely a tree or a shrub that will not propagate readily from cuttings, and all kinds can be increased almost indefinitely. Insert the cuttings in a moist piece of ground in the spring and give them one or two hoeings. By the second year they will be large enough to transplant to permanent quarters. Herbaceous plants, like lilies, phloxes, peonies, irises, yuccas, anemones, and hundreds of others, can have their roots divided, and the plants will be all the more thrifty for the division.

Pruning is the secret of successful shrub-growing, and in nearly every locality can be found a fair assortment of shrubs and plants whose owners would be perfectly willing to give away the cuttings of pruning, and cuttings of such desirable shrubs as might not be found in the neighborhood could easily be procured from a nursery for a few cents. I know a young man who has several acres of fine shrubbery, nearly all of which he raised from cuttings procured in the neighborhood. What would have cost him several hundred dollars at a nursery, cost him only a few days labor and some years of waiting. There are dozens of handsome California private hedges in his vicinity, all raised from cuttings furnished by a gentleman a few miles away who prunes his hedge three or four times each summer. I have propagated thousands of willows, poplars, hydrangeas, altheas, roses, spireas, and other trees and shrubs and lost less than five per cent of the cuttings. Outside of the saving, there is a fascination in raising one's own shrubbery; and, if desirable, one can easily make it a source of no inconsiderable profit. I know small farmers who add \$100 or more each year to their income by growing a small assortment of plants for local trade.

October in the Garden.

I like to go into the garden these warm latter days, and muse. To muse is to sit in the sun, and not think of anything. I am not sure but goodness comes out of people who bask in the sun, as it does out of a sweet apple roasted before the fire. The late September and October sun of this latitude is like the sun of extreme Lower Italy; you can stand a good deal of it and apparently soak a winter supply into the system. If one only could take in his winter fuel in this way! The next great discovery will, very likely, be the conservation of sunlight. In the correlation of force, I look to see the day when the superfluous sunshine will be utilized; as, for instance, that which has burned my celery this year will be converted into a force to work the garden.

This sitting in the sun amid the evidences of a ripe year is the easiest part of gardening I have experienced. But what a combat has gone on here! What vegetable passions have run the whole gamut of ambition, selfishness, greed of place, fruition, satiety, and now rest here in the truce of exhaustion! What a battlefield, if one may look upon it so! The corn has lost its ammunition and stacked arms in a slovenly, militia sort of style. The ground vines are torn, trampled and withered; and the ungathered cucumbers, worthless watermelons, and golden squashes lie about like the spent bombs and exploded shells of a battle-field. So the cannon balls lay on the sandy plain before Fort Fisher after the capture. So the great grassy meadow at Munich, any morning during October Fest, is strewn with empty beer mugs. History constantly repeats itself.—*Charles Dudley Warner.*

Calendar.

1896-97.
Fall Term—September 10th to December 19th.
Winter Term—January 5th to March 27th.
Spring Term—March 30th to June 10th.
June 10th, Commencement.
1897-98.
Fall Term—September 9th to December 18th.

To School Officers.

The College Loan Commissioner has funds now to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioner and the State Agricultural College. Address C. R. Noe, Loan Commissioner, Leon, Kan.

GENERAL LOCAL NOTES.

The program for the Alpha Beta Annual on December 5th, has already been outlined.

R. J. Peck, Fourth-year, is College correspondent of the *Western College Magazine* of Kansas City.

A large number of students will go home to vote. Greater interest in election has never been shown.

A simple yet effective device for holding inside blinds open has been placed in the windows of the main building.

Mr. Carnell, of Bunker Hill, Russell County, visited College last week in company of his daughter, Fanny, Fourth-year.

The Misses Pfuetze entertained very pleasantly a number of their classmates and friends at their home, Wednesday evening.

Grace Stokes, Third-year, was a delegate from the Manhattan League to the District Convention at Alma, from Wednesday to Sunday.

Mrs. Graham left on Wednesday last for a week's trip to Springfield, Ill., where she goes as a delegate from Kansas to the National Convention of Christian Churches.

J. M. Westgate, Fourth-year, and J. W. Adams, Third-year, represent the College Association in the Annual Convention of the Young Men's Christian Association at Leavenworth.

Prof. Hood spent Friday in the State Irrigation Association at Great Bend, and President Fairchild followed on Saturday. Both presented papers, the substance of one appearing in this number of the *INDUSTRIALIST*.

Our thanks are due to Mr. A. G. McFeely, of Gypsum City, for a very handsome pair of polished buffalo horns. The horns have been placed in the museum, where they will serve a most useful as well as ornamental purpose.

The editor was the guest of his old friend, Lieut. Burnham, of Ft. Riley, on Tuesday, for a few hours. The Lieutenant was a student at the College more than twenty years ago. He is now stationed at Ft. Leavenworth, was married in 1890, and has a son five years old. He is one of the most popular young officers in the service.—*Manhattan Republic*.

Rev. E. M. Fairchild, of New York City, eldest son President Fairchild, has a strong article in the *American Journal of Sociology* on "The Educational Church." The article is quoted at length in the *Review of Reviews* for October. Mr. Fairchild has taken up work for the next year in Dr. Felix Adler's Schools of Ethical Culture in New York City. His address is 241 West 34th St.

The Students' Free Silver Club held its first regular meeting in the Bryan Club Room, in the city, Monday evening, Oct. 12th. The entertainment of the evening consisted of speeches on political subjects by C. W. Shull, E. V. Hoffman, and R. W. Clothier, and music by the Glee Club. The hall was comfortably filled and the audience appreciated very highly the preparation the boys had made for the evening.

The Third Division of the Third-year Class appeared in Chapel Saturday afternoon with the following program: "Taking Suggestions from Nature," Bertha Spahr; "The Nobility of Labor," G. R. Crawford; "The Uprising," F. H. Day; "The Independent in Politics," W. E. Hardy; Vocal Solo, Edith Huntress; "Grandeur of the Ocean," Cassie Dille; "The Origin of Man," J. M. Kessler; "The Downfall of Bonaparte," G. G. McDowell; "The Mission of the Poet," Josephine Finley.

In this College, and probably in almost every institution of the sort in the country, there are always some students who have the constant plaint that the professors "have it in for them." If they do not advance as rapidly as their imagination urges that they should, if they get low grades or fail, it is to them always due to the same cause; that is, to the spite of the professor. Scarcely anything could be more erroneous. It is safe to say that ninety-nine per cent of such cases have no foundation whatever. As intelligent men, the professors know that it is to their interest to aid in the advancement of every student under them just as fast as they are able to advance. The greater the number of graduates they can turn out who will not be a reproach to the thoroughness of the College, the higher will be their reputation as educators. But this is not all. The average college professor of today, if he would keep his place as an educator, must be an enthusiast in his line, he must be an expert, he must take an interest in each member of his class. And the fact is, that the teacher often suffers a great deal more when he is obliged to fail a student than the student himself does, for he realizes that all his efforts to help the student have been fruitless. So, my friend, when you consider all this and remember that you are not the greatest man

on earth, at least not great enough to make a professor wildly jealous of you, you will begin to wonder why you ever did imagine that anybody ever "had it in for you."—*Students' Herald*.

GRADUATES AND FORMER STUDENTS.

C. D. Adams, '95, teaches at Perry.

O. V. Latto, student last year, visits College for a few days.

A. W. Staver, Second-year in 1895-6, teaches school near his home in Johnson County this year.

Christine M. Corlett, '91, writes from Guthrie, O. T., of a desire to begin post-graduate study for the Master's degree.

W. A. Cavanaugh, '96, came out from Fort Leavenworth, Friday, to visit for a few days with his father, Capt. Cavanaugh.

H. J. Robison, Fourth-year in 1895-6, visited at College several days last week. He expects to enter classes after mid-term.

R. S. Kellogg, '96, writes in a recent number of the *Students' Herald* under the caption, "Are We Living Up to Our Privileges?" asking students pertinent questions.

E. J. Abell, '95, writes from Scandia, Republic Co., Kansas, where he is Principal of Schools, doing chiefly high school work. He plans to take up post-graduate study.

The jovial face of Harry Rushmore '89, was seen about the corridors for a few hours on Tuesday last. Harry says his candidate for President will be elected, and then we shall all be happy.

Stanley Robbins, Second-year in 1894-5, Llewellyn Hardy, student in 1891-2, and Elmer Hathaway, Second-year in 1895-6, are members of the Army Hospital Corps at Fort Leavenworth.

Dr. Harry A. Brous, '74, was married, October 6, to Miss Elizabeth Frances Livermore of Woodbury, New Jersey. Florence J. Brous, '84, of Manhattan, sister of the groom, was one of the bridesmaids. Dr. and Mrs. Brous are at home in Philadelphia, where the former has been a practicing physician for several years.

L. C. Marlatt, '84, First Assistant in Entomological Division, U. S. Department of Agriculture at Washington, is at San Antonio, Texas, pursuing his study of the cotton boll weevil. He soon goes to California for a stay of a few weeks to investigate the ravages of insects injurious to fruit trees and study plans for combatting them.

The Enrollment.

The total enrollment is now 580, divided among the several classes as follows: Post-graduates 26, Fourth-years 65, Third-years 76, Second-years 125, First-years 208, B Class 70. Of this total, 250 are here for the first time, and come to us from the following Counties and States:—

KANSAS COUNTIES.

Allen 1, Anderson 1, Brown 2, Butler 2, Chase 4, Chautauqua 5, Cherokee 1, Clay 3, Cloud 1, Coffey 5, Cowley 2, Dickinson 4, Doniphan 2, Douglas 1, Edwards 1, Ellis 3, Ellsworth 1, Finney 1, Ford 2, Franklin 5, Geary 5, Gove 1, Graham 1, Greenwood 1, Hamilton 1, Harper 1, Jackson 11, Jefferson 3, Jewell 7, Johnson 4, Kingman 2, Kiowa 3, Labette 1, Leavenworth 3, Lincoln 7, Lyon 3, McPherson 1, Marion 1, Marshall 5, Miami 4, Mitchell 1, Morris 2, Neosho 1, Osage 3, Osborne 2, Ottawa 2, Pawnee 2, Phillips 2, Pottawatomie 8, Rawlins 3, Republic 5, Rice 1, Riley 66, Saline 3, Scott 2, Shawnee 3, Sheridan 1, Smith 3, Sumner 1, Wabaunsee 3, Washington 1, Wichita 1, Wilson 3, Woodson 1.

OTHER STATES.

Oklahoma 2, Missouri 5, Indian Territory 1, Colorado 1, Ohio 1, Illinois 1, Nebraska 1, Texas 1, Mexico 1.

All of these new students were born in Kansas except 78, and they were born in the States and countries named below: Alabama 1, Colorado 1, England 3, Germany 1, Illinois 14, Indiana 6, Indian Territory 1, Iowa 8, Missouri 11, Nebraska 1, New York 6, Ohio 11, Pennsylvania 7, Tennessee 4, Texas 1, Wisconsin 2. About 70 per cent of these students are native Kansas born. One hundred eight of the new students come to us from city and town schools, 119 from district schools, 21 from other colleges and academies, one from the county normal institute, and one from a private school.

One hundred sixty-one propose to take the full four years course and graduate, 82 propose at least a partial course, one a special course, and six are undecided.

During their course here, 60 of these students will be entirely self supporting, 116 are dependent upon parents, 69 support themselves with help from their parents, four depend in part upon support from friends and relatives other than parents, and one is wholly dependent upon friends.

These new students were admitted upon grades obtained by examination here, 102; certificates of passing the grammar grade of approved city schools, 31; on approved county diplomas, 69; graduates of approved city high schools, 27; grades from colleges, 5; Kansas teachers' certificates, 15, and by special arrangement for an irregular course, 1.

Being asked as to their parents' business, the following answers were returned: Farmers 178, Merchants 17, Carpenters 5, Stone-masons 3, Editors 4, Bankers 2, Real Estate Agents 2, Machinists 2, Millers 2, Hotel Keepers 2, Lawyers 5, College professors 2, Druggists 2, Engineers 3, Day laborers 2, and

Travelling Salesman, Waiter, Nurseryman, Contractor, Blacksmith, Superintendent of Indian Schools, Manufacturer, Dairyman, Stenographer, Book-keeper, Abstractor, Physician, General Business Man, Baker, Dress-Maker, Nurse, and not given, one each.

It will be noted that more than 70 per cent of these students come from farm homes.

I. D. GRAHAM.

The Y. W. C. A. State Convention.

The eleventh annual State Convention of the Young Women's Christian Association was held in town from Thursday to Sunday. Seventy delegates were present, chiefly from college towns, as guests of the College Association. The sessions were held in the Methodist Episcopal Church, and the attendance at times taxed the seating capacity of the building, recently enlarged by a generous addition. Deep interest marked all the sessions. The delegates showed an earnestness of purpose which was a revelation to those unfamiliar with the work of the Association, and much good must follow the meeting of these representatives of the many bands of Christian workers throughout the State, who carry with them to their homes many new and helpful ideas in association work and, what is more necessary, the zeal to apply them.

The convention sermon by Chancellor McDowell of Denver University attracted a large audience on Friday afternoon, as did the annual address, also by the Chancellor, in the evening. Among so many good things it is impossible to particularize. The subjoined program shows something of the feast spread before the convention:—

THE PROGRAM.

Thursday Afternoon.

3:00. Preparatory Service. Miss Laura Radford, State Secretary.
3:30. Organization of convention.
4:00. Bible Study. Mrs. Geo. Howe.

Thursday Evening.

7:30. Song Service. Miss Mary Lyman.
Greetings.
Response.
Opening Address. Miss Helen Barnes, Prospect, Ohio.

Friday Morning.

Delegates are invited to spend the morning in the State Agricultural College.

Friday Afternoon.

2:00. Bible Study, Esther. Miss Emma Burgess.
3:00. Our Extension Work. Miss Harriette Thompson.
Our Chautauqua Department. Miss Viola Troutman.
3:40. Convention Sermon. Chancellor W. McDowell, Denver University.

Friday Evening.

7:00. Reception in church parlors.
7:45. Annual Address. Chancellor W. McDowell, Denver University.

Saturday Morning.

9:00. Bible Study, Hebrews. Miss Emma Burgess.
10:00. The Young Women's Christian Association an Evangelistic Agency.
Our Papers.
The principles which should govern the Christian Student in her choice of her life work. Miss Mary Powell.
11:00. Business Meeting.
Quiet Hour. Miss Mary Powell.

Saturday Afternoon.

2:00. Association Reports.
2:30. Our Last Year's Work.
Dr. Ida C. Barnes, State Chairman.
Miss Nellie Goodrich, State Treasurer.
Miss Laura Radford, State Secretary.
Our Work for the Present Year. Miss Helen Barnes.
4:00. Committee Conference.
Bible Study.

Saturday Evening.

7:00. Initiation Service.
Presentation of Diplomas to New Association.
8:00. Address, with Stereopticon Views of Lake Geneva.
Miss D. Florence Simms.

Sunday.

9:00. Prayer and Consecration Meeting.
3:00. Missionary Meeting. Miss Irene True.
4:00. Gospel Meeting. Miss D. Florence Simms.
7:30. Addresses by Convention Speakers in all the churches.
8:45. Farewell Meeting. Miss Laura Radford.

Convention Soloists were Miss Serena Pratt of Topeka and Miss Nellie G. Ingraham of Beloit. The Convention music was under the direction of Miss Mary Lyman, '94, of Manhattan, assisted by the Baker University Quartette.

THE VISIT TO COLLEGE.

Friday forenoon was spent in visiting the College. After watching the drill, the delegates filed to overflowing our already full chapel. Miss Radford spoke to the students in behalf of the Association.

The visitors were shown about the buildings and grounds, some of them visiting classes, until the noon hour, when they were invited to the kitchen laboratory where a dainty lunch was served, then, when the girls left they began to have some idea, as one of them expressed it, how we can love our College as they do their own.

CONVENTION SPEAKERS.

Miss Florence Simms, International Secretary, Chicago.
Miss Emma F. Burgess, State Secretary of Missouri, Kansas City.
Miss Helen F. Barnes, Prospect, Ohio.
Miss Mary Powell, a Deaconess, Milwaukee, Wis.

THE DELEGATES.

Topeka—Laura Radford, State Secretary; Helen Ingalls, Irene True, Dr. Ida Barnes, Mrs. Geo. Howe, Serena Pratt, Nelly Goodrich, Emma Wehe, Mina Keese, Fannie Sibly, Alice Chatwick, Miss Davis, Elizabeth Tunnell, Kittie Fisher.
Salina—Mirta L. Lancaster, Josephine Moody, Ella McGill, Clara M. Drew, Emma Theil, Mary Craig, Pearl Allen, Mary Walter, Eliza Martin, Mollie Short, Wilma Hoard, Blanche Romick, Louise Perrill.
Lawrence—Nellie Newson, Louise Towne, Gertrude Spaulding, Bessie Johnson, Dora White, Alberta

Cory, Stella Gallup, Nellie Boring, Cora Fuller, Elizabeth Warren, Martha Snow, Katie Johnston.

Ottawa—Beulah H. Merrifield, Hannah Johannes, Ivy E. Thompson, Maud Frink, Teresa Stephenson, Hanna Pierson, Creanor T. Lister, Anna B. Lambertson, Stella Baxter, Lulu E. Fowler.

Baldwin—Mattie Lake, Miss Simonton, Ethel Caviness, Mabel Knox, Rachel Henderson.

Fort Scott—Emma W. Clark, Belle Fleming.

Holton—Flora Work, Mrs. Shattuck; Mabel Cook.

Emporia—Miss McCabe, Miss Swan.

Highland—Jennie Overlander.

Randolph—Alice Johnson.

Lost Springs—Mrs. Lillie B. Shirk.

Wamego—Rose Simonton.

Beloit—Nellie Ingraham.

ROLL OF LOCAL ASSOCIATION.

Emma Finley (President), Mrs. Kedzie, Alice Arnold, Mary Becker, Sophronia Channell, Grace Clark, Maggie Correll, Lucy Cottrell, Mabel Crump, Josie Filley, Eva Gill, Grace Hill, Winifred Houghton, Eva Kneeland, Olive Long, Gertrude Lyman, Inez Manchester, Marion Monroe, Ollie McCurry, Louise Maelzer, Maggie Minis, Jennie Needham,	Fannie Noyes, Eva Philbrook, May Pierce, Nora Reed, Dora Shattell, Alice Shofe, Minnie Spohr, Grace Stokes, Tacy Stokes, Anna Streeter, Isabella Symms, Harriet Thackrey, Lizzie Threlkeld, Harriet Vandivert, Elsie Waters, Mary Waugh, Nannie Williams, Clare Wilson, Jennie Weeks, Ethel Wolfley, Kate Zimmerman.
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COLLEGE ORGANIZATIONS.

Student Editors.—W. B. Chase, Emma Finley, E. Shellenbaum.

T. M. C. A.—President, S. J. Adams, '98; Vice-President, G. D. Hulet, '98; Recording Secretary, O. S. True, '98; Corresponding Secretary, J. M. Pierce, '98; Treasurer, R. B. Mitchell, '99.

T. W. C. A.—President, Emma Finley; Vice-President, Maggie Correll; Recording Secretary, Ethel Wolfley; Corresponding Secretary, Mary Waugh; Treasurer, Lucy Cottrell.

Webster Society.—President, W. B. Chase; Vice-President, J. B. Norton; Recording Secretary, S. Nichols; Corresponding Secretary, F. Zimmerman; Treasurer, C. Masters; Critic, R. J. Peck; Marshal, C. D. Lechner; Board of Directors, R. W. Bishoff, S. B. Newell, R. B. Mitchell, C. C. Jackson, P. K. Symms.

Ionian Society.—President, Winifred Houghton; Vice-President, Emma Finley; Recording Secretary, Jessie Bayless; Corresponding Secretary, Bonnie Adams; Treasurer, Dora Shattell; Critic, Myrtle Hood; Marshal, Clara Long; Board of Directors, Harriet Vandivert, Minnie Copeland, Olive Long.

Alpha Beta Society.—President, C. W. Shull; Vice-President, Grace Dille; Recording Secretary, G. D. Hulet; Corresponding Secretary, Elsie Waters; Treasurer, Kate Zimmerman; Critic, Alice Shofe; Marshal, Anna Streeter; Board of Directors, J. M. Westgate, Marion Gilkerson, G. D. Hulet, Sophronia Channell, May Pierce, T. J. Rumold, Florence Harling.

Hamilton Society.—President, W. L. Hall; Vice-President, C. B. Ingram; Recording Secretary, A. D. Whipple; Corresponding Secretary, Guy F. Farley; Treasurer, B. F. Durant; Critic, H. M. Thomas; Marshal, T. E. Thomas; Board of Directors, O. E. Noble, Chairman, H. McCaslin, Secretary, G. G. Menke, Wm. Poole, Wm. Anderson.

October 10th.

Although all without was dark and dismal, a room full of cheerful faces greeted President Shull, of the Alpha Betas, as he rapped for order, and the program of the day began with music, in which all joined. Mr. Perry led in devotion. A quartette, consisting of Misses Ella and Etta Barnard and Messrs. McLaren and Hulet, then gave a selection. After the names of Carl Hofer, S. B. Jolly, Misses Berkley and Mather were added to the Alpha Beta roll, Mr. McCullough gave some well chosen thoughts in an oration on the "Essential Qualities of Success." Miss Whitford, a visiting friend, rendered in a pleasing manner an instrumental solo which was enjoyed by all. In an essay, Maud Zimmerman told of the "Wonders of the Crafts," giving an interesting description of the growth and development of the arts. "Resolved, That Slavery was Advantageous to Greek Civilization" was debated affirmatively by Harriett Thackrey and negatively by Lucy Cottrell. The Society gave the decision in favor of the negative. The vocal duet by R. W. Clothier and Mabel Gilkerson was enjoyed by all. Miss Channell, in her usual graceful manner, played the accompaniment. The Gleaner was next presented by its editor, Florence Martin. Although shorter than usual, it was quite interesting. After a short recess, the orchestra furnished music. Following roll call, Miss Mather entertained the Society with a guitar solo. The program for the joint entertainment was made out, after which the Society adjourned.

E. L. W.

October 10th.

Instead of the many vacant chairs which last Saturday told of absent members, every chair was filled today, and many Ionians stood to make room for visitors. As proof that they were not at all offended with the suggestion, made by the girls, that their presence was not at all times helpful, the gentlemen who with courteous consideration allowed the girls to meet alone last Saturday, took advantage of this second Saturday of the month to visit the Society. Among other visitors, about twenty gentlemen were present. Both visitors and members joined heartily in the singing. Miss Bertha Spohr led in devotion. The roll call showed that a few members were absent. Miss Howell was elected. Several features of the program were new, and proved a restful change. The musical part consisted of solos, the first sung by Mr. Hoffman, at the opening of the program. The fourth number of the Oracle was edited by Miss Bessie Hall. It was one of the numbers that contributed so largely to the success of the whole program. A piano solo by Miss Helder was heartily applauded, and she gracefully responded to an encore. The next number on the program was the first chapter of a book, read by Miss Bertha

Spohr. It was enjoyed by everyone, and it is hoped that such a delightful addition to the program will appear again. An instrumental solo by Stella Stewart was followed by a talk by Mrs. Kedzie, about the cathedrals she had visited while in Europe. Of course she had but a short time to talk, but in those few minutes the audience perhaps got a clearer idea of cathedrals and how they look than they had ever had before. When she had done, all felt a great desire to visit them and see for themselves. While Miss Barnes entertained the audience with an instrumental solo, the photographs of the cathedrals Mrs. Kedzie had visited and told of were passed around. A brief recess was had, during which most of the visitors left, and the Ionians were almost alone in their business session. The session presented so many things for consideration that it was necessary to omit the last orders of the day, and the Society adjourned at 5:15.

B. F. A.

October 10th.

Nearly all of the eighty-two Websters responded to roll-call. Prayer was offered by L. P. Keeler. Under initiation of candidates, five more Websters were added, viz.: C. Scott, L. Werts, E. Alexander, R. Spilman, and F. Harrold. The debate drifted back to the historical times of France, "Resolved, that Napoleon's Life and Career was for the Betterment of the Rising Generation." L. E. Potter and H. Webster argued the affirmative. Napoleon was the best student of his class; he was ambitious; his temper was mild and affectionate, and all his wars were for the benefit of France; he was the general of generals. O. S. True and L. M. Chase represented the negative. Napoleon was cunning instead of smart; his conquests were not for the building up of generations, but he starved people to death by his wars; his sole ambition was to become emperor; he fought for the love of conquest. F. Walters and G. G. McDowell gave us a zobo duet entitled, "Je-boom-de-a." The treat of the evening was by R. B. Mitchell with his declamation, "Last days of Hercules." It was equally as good as his declamation at our annual last year. A. E. Blair's essay was, on "Vacation Trips." The essay was interspersed with applause by the Society. J. C. Bolton's declamation, "The Superfluous Man," was well rendered, and some of us bachelors felt that it was true. An excellent number of the Reporter was edited by E. B. Patten, motto, "New Wheat Never Ruined as Many Men as Old Rye." Some of the pieces were "Devil Drunk," "Honest Work," and poem on "Museum Tragedy." T. P. VanOrsdol's discussion took us to Florida for a time, and he showed us the beauties and pleasures of the Sunny South. Under business, members were appointed to fill the places on the joint entertainment.

F. Z.

October 10th.

Promptly at 7:30, President Hall called the Hamilton Society to order, and the liveliest session of this term was begun. From the time the gavel fell, till the lights went out, there was never a lag in the interest and vigor of the work. Under the order of initiation, H. C. Avery, E. A. Nelson, D. J. Burke, and J. M. Yard took the oath of allegiance. A. S. Kinsey opened the program of the evening with a declamation on the progress of America and how influenced by the law of mind. Ernest Rhodes read a selection from Bill Nye prescribing Woman's Suffrage as a panacea for all evils. W. O. Peterson, in his oration, portrayed panorama of the coming election. The question, "Resolved, That ministers should not participate in politics," was ably argued on the affirmative by V. Maelzer and O. N. Vinall, while G. F. Farley and F. D. Waters defended the preacher in politics. The Society decided in favor of the negative. H. M. Thomas, in his oration entitled, "Traveling Too Fast," showed the inevitable end of the man who over-rates his own ability. The Hamilton Recorder was presented Wm. Anderson. Motto: "Toot your own bazoo, for no one will toot it for you." The paper was an exceptionally good one, and was well received. The Critic in his report commended the true merit of the evening's work. Under propositions for membership, a half dozen more names were added to our list of prospective members. After recess, the interesting part of the session began, and the Society showed its old time life in the parliamentary work that followed. The President kept his bearings admirably, and never once got lost, among the mist and fog of "points of order" and "appeals" that prevailed the air. The Society adjourned as the lights went out, and the members went home with the "old time" feeling of having accomplished something of note.

G. F. F.

The Y. M. C. A. met as usual Sunday afternoon. G. D. Hulet led the meeting, taking as his subject, Matt. 22:42, What think ye of Christ? Several of the members were called on to talk upon Eccl. 11:9, Eccl. 12:1, Gen. 6:3, and Isaiah 55:6. The leading thought brought out was that youth was the time to seek Christ, that we may enjoy His blessings all our lives, and when we are old we will have the satisfaction of a well-spent life.

J. M. P.

Young People on the Farm.

At the last farmers' institute in this county, the question as to how to keep boys and girls on the farm was generally discussed. Some original ideas were advanced, but it is doubtful if any practical conclusion was reached.

As some of the more thoughtful pointed out, it is not always advisable to keep the boys and girls on the farm. Young people must be permitted to follow the bent of their own genius, and if this leads them to the towns it would be unwise for parents to interfere. It does not always follow that young people reared

on the farm are adapted by tastes and endowment to farm life. Professions and trades are recruited from the sturdy youth of rural districts. As a class, farm bred young men become the leaders in nearly every pursuit of life. There is an adaptability about the American mind that makes it impossible if it were desirable to confine a young man to the pursuits and occupations of his ancestors. The American mind intuitively seeks the field of usefulness that promises the most fruitful returns for endeavor, and young people shift from calling to calling, and class to class as naturally as water seeks its level.

As a general proposition, then, it is not desirable to "keep boys and girls on the farm," for that would exclude from the learned professions and trades and industries the most vigorous and virile blood now infused into them. And yet there is the need of removing the idea that an educated, cultured, young person has no place on the farm. And there is need, too, of combating the prejudice of the average college bred youth against farm life, with its isolation and attention to detail.

We think that one of the principal causes of aversion to farm life among the young people is the popular impression that farming does not pay, that it yields no return for labor expended, that it is labor and drudgery without adequate returns or social standing. And for this unfavorable opinion of farming as an industry, farmers themselves are responsible. Too many of them make themselves and their children believe that failure is inherent in the business, and success a freak or accident. Is it contrasted with the avocation of the tradesman, which is haloed with the enchantment of distance, and young people cannot help becoming dissatisfied with their rural surroundings. If farmers wish to keep their children at home, they must more fully appreciate the nobleness and dignity of their own calling. They must teach that intelligent effort can win as rich rewards from the soil as it can in any line of labor in city or town. And this is true. Industry and intelligence win on the farm as well as in the professions. Farming pays under their sway, and when so conducted there is no surer, more independent, respectable, and pleasurable way of engaging one's time. Let farmers teach their children the true dignity and true worth and possibilities of their calling, and the problem of keeping them on the farm will solve itself as much as solution is desired.—Carroll (Iowa) Herald.

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All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

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Questions, scientific or practical, concerning the different departments of study and work, may be addressed to the several Professors and Superintendents.

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NOTES ON GASOLINE AND KEROSENE.

BY PROF. J. T. WILLARD.

ACCIDENTS in the use of gasoline and kerosene continue to occur in sufficient number to remind us of their dangerous character unless properly handled. Considering the high inflammability of the former, it should be regarded as remarkable that so few accidents occur. These cases are usually referred to by the papers as "explosions." In the great majority of them, there is no explosion, but simply an ignition of the oil.

An explosion is an exceedingly rapid combustion or decomposition, attended by the formation of gases. Combustion, in the usual sense of the word, is combination with oxygen. Explosive combustions are possible, therefore, only when oxygen is intimately mixed with the combustible substance. This may be a mixture of a combustible gas or a very finely divided solid, with pure oxygen gas or the mixture of oxygen and other gases which constitutes air. In other cases, the oxygen may be present in a more or less easily decomposed compound as it is in the saltpetre of gunpowder, which furnishes the oxygen to burn the sulphur and carbon with which it is mixed. In still other cases, unstable oxygen compounds contain within themselves the elements of their own destruction, and require only heat or a shock to enable the oxygen in one part of the molecule to unite with combustible elements in the other parts. Many substances are known which, although free from oxygen, are decomposed explosively when heated or struck because of their instability. The hydrocarbons found in petroleum do not possess this property, however; they are not explosive in themselves, but because of their high combustibility, a mixture of their vapors with oxygen or air in suitable proportions is highly explosive. It really requires some skill to mix the vapor of gasoline with air in the right proportion to make a true explosion, although a bad fire can be produced with the greatest ease in this way. Genuine explosions have frequently occurred in lamps, however, and a good understanding of the conditions necessary for their production will enable us to avoid them.

It will be seen from the foregoing that explosions can occur only by the admixture of air with the vapor of the oil, followed by ignition of the mixture. In all lamps, then, where the oil is contained in a reservoir higher than the burner, and at such distance that it cannot become heated, explosion is impossible. The oil is supplied to the wick by a small lower reservoir connected with the main reservoir by a tube. This lower reservoir is thus kept full all the time, and there is no chance for vapors to accumulate in the lamp. In ordinary lamps, however, as the oil is burned, air enters and takes its place in the upper part of the lamp. If, now, the oil in the lamp be heated, vapors are produced which mix with the air and are liable to explosion. All that is necessary is that a flame obtain access to the mixture. This may occur in various ways. There are often small openings communicating with the oil chamber. Flame may be blown down these in blowing out the lamp, or a puff down the chimney produced by carrying the lamp, or by wind. Sometimes the motion of the oil in carrying the lamp expels some of the explosive mixture, which takes fire, and communicates the flame to the whole. Various other means of igniting the mixture have been observed. From this it will be seen that lamps should have no openings near the flame; they should be so constructed that the oil does not become heated; the oil reservoir should be kept as full as practicable, and the light should not be extinguished by blowing down the chimney. In extinguishing a lamp, the wick should be turned down until a mere flickering flame remains, and a sharp breath should then be blown up the chimney or straight across the top. This lifts the flame off instead of blowing it down toward a possibly explosive mixture in the lamp.

The danger of evolution of vapors from the oil is much greater from poor oils than from good. The poor oil contains compounds that evaporate much more easily, and which properly belong in the naphtha and gasoline. If kerosene contains gasoline, even in small percentage, it becomes far more inflammable, and highly dangerous, if used in ordinary lamps. Lamps are made especially for use with naphtha which are safe if properly used, just as gasoline stoves are, but such liquids should never be used in glass lamps or any lamp designed for kerosene. There is no chemical treatment which will remove the

dangerous inflammability of gasoline and naphtha, while good kerosene will extinguish a match as readily as water will.

Many years ago an engaging gentleman sold the lady of the house a small box of a powder guaranteed to prevent explosions in lamps. Some of the powder was to be placed in each lamp. Twenty-five cents was the modest amount charged for about one ounce. The curiosity of the small boy of the house led him to taste the powder, and it proved to be common salt as far as that test went. Within a few weeks a similar fraud has been presented to the people of this, and probably other towns, often, no doubt, by agents who are honest enough, but simply ignorant. It is proposed to make a "new safety gas fluid" (one of the greatest chemical discoveries of the age) which gives a genuine gaslight," etc., by the following method: "Into one quart of gasoline put 4 oz. of salammoniac and six table spoonfuls of table salt; keep this tightly corked and let it stand one hour before using; this makes the safety compound. Then add two table-spoonfuls of this compound to each gallon of gasoline; then fill your lamp with gasoline thus prepared. The salammoniac and salt do not dissolve, but the vitality leaves it so it cannot be used a second time." All this is rank fraud. The salt and salammoniac have absolutely no effect on gasoline, and the alleged "safety compound" is still plain gasoline. The whole plan, then, is to fill ordinary lamps with gasoline and burn it by means of a special burner. I have not seen the burner, but it cannot but be the height of recklessness to attempt to use gasoline in a common lamp, no matter what the burner.

BUYING GROCERIES.

BY MRS. NELLIE S. KEDZIE.

SHALL we buy groceries in large or small quantities? is a question so often asked that it is worth the while of every housekeeper to consider it seriously. We know that although all food materials can be bought for less money in large quantities, the use of the money is often worth all the difference paid. Many housekeepers feel that they like to have some check placed upon themselves or their helpers, and some say, "I use so much more if there is plenty in the house." This thought is unworthy a housekeeper. No true woman saves just because she sees the bottom of the bag, and the real economist dips as carefully from the top of the barrel as she scrapes at the bottom.

There are some materials which grow better as they grow older; and such should be purchased in as large quantities as the house mother can well store. Hard soap in one of these. The older, dryer, and harder it is, the better it lasts. If there be a dry place in the house where the box of soap will be out of the way, it certainly pays to buy soap by the box. Green coffee, if kept in a dry place, grows better with age. This is not true of brown coffee; for after coffee is roasted, it loses aroma and decreases in strength; therefore, the more freshly roasted coffee is, the better the beverage made from it. Tea constantly loses strength,—slowly, to be sure,—and therefore should not be bought in large quantities. When sugar cost ten or twelve cents per pound, most household managers felt that there was enough waste between the barrel in the store and the sugar pail in the pantry to make it economy to buy sugar by the barrel, in spite of the fact that the interest on the money paid for a barrel of sugar made quite a tidy sum before the sugar was all used. Today, when sugar is one of our cheaper foods, although perhaps the waste is no less, its cost is less, and sometimes the matter of providing for the sugar barrel costs more time and money than the waste will balance. The same arguments hold with many groceries. There may be many sides to the question.

Canned goods always come cheaper by the case. They do not deteriorate by keeping. They can be put away in almost any place where they won't freeze, and they take up little room. It is worth the small amount of extra money put into them to have the freedom from worry which a well-stocked cupboard of canned goods of four or five varieties (mixed cases can be bought readily) will give. This is no more canned material than every housekeeper with a moderate family uses in a few months. If bought in this way instead of one can at a time, the fact that there is material on which to draw in case of unexpected company, or when there are unusual demands upon the time of the housekeeper, and she wishes to

(Continued on page 36.)

TABULAR VIEW OF HISTORY OF ACT OF FEBRUARY 12, 1873, KNOWN AS THE "MINT BILL."

COMPILED BY PROF. THOMAS E. WILL.

STEP- No.	Congress.	Session.	PROCEEDINGS. (See Note 1.)	Senate.	House.	Readings.	Printings.	Amendments.	SUBJECTS CONSIDERED. (See Note 2.)	Columns filled, (approximately.)	PARTICIPANTS IN DISCUSSIONS.	REFERENCE.			
												Volume.	Page and Column.	Bill.	
1	41	2	Submitted by Sec. of Treasury Boutwell to Chairman of Sen. Finance Committee, Jno. Sher- man.	Apr. 25, 1870.								S. Mis. Doc. No. 132, 41st Cg., 2nd Ses.	1		
2			Introduced by Senator Sherman and referred to Senate Finance Committee.	Apr. 28, 1870.		Twice by title.	X					Cg. Glb., pt. 4, 2nd Ses., 41st	3051, Col. 3	S No. 850	
3			500 copies of letter of Sec. Boutwell to Sen. Sher- man ordered printed.	May 2, 1870.									3132, Col. 2	"	
4			Sec. Boutwell transmits to Speaker of House of Reps., Jas. G. Blaine, letter from Deputy Comptrol- ler of Currency, Jno. J. Knox, together with copies of correspondence of Treasury Dept. with "Ex- perts" regarding bill.	June 25, 1870.								Ex. Doc. No. 307, 41st Cg., 2nd Ses., H. R.	5	"	
5		3	Sen. Sherman reports bill with amendments.	Dec. 19, 1870.				Bill reprinted by Senator Sherman with.				Cg. Glb., pt. 1, 3d Ses., 41st Cg.	155, Col. 3	"	
6			Sen. Sherman gives notice that he will try to call up bill on next day.	Jan. 4, 1871.				Considered as in com. of the whole and adopted.				" "	291, Col. 3	"	
7			Bill debated for first time.	Jan. 9, 1871.				Above adptd. save a m e n d- ment in sec 25, impos- ing coin- age charge	Amendments to Sec. 25 establish- ing a coinage charge. Amendments to Secs. 25 and 67; ad- dition of Secs. 69, 70, and 71. Coinage charge. Omitting word "Liberty" from coins.	29 14 3-5	Vice-Pres.; Sens. Sher- man, Cole, Corbett, Wil- liams, Stewart, Morrill of Vt., Casserly, Nye, Thur- man. Vice-Pres.; Sens. Cole, Sumner, Bayard, Sher- man, Stewart, Thurman, Morrill of Vt., Cole, Cas- serly, Corbett, Warner, Williams, Howell, Mor- ton.	367- 378 394- 399 423, Col. 1 447, Col. 3 483, Col. 3 1655, Col. 2	" " " " " " Cg. Glb., pt. 3, 3d Ses., 41st Cg.	" " " " " " "	
8			Bill debated for second time (debate of preceding day continued); bill passed by a vote of 36 to 14, Sen. Sherman voting against.	Jan. 10, 1871.		Read 3rd time.									
9			Message from Senate to House of Rep. that Senate had passed bill S. No. 859 and requesting concurren- ce of House.	Jan. 10, 1871.											
10			On motion of Mr. Kelley of Penn., bill S. 859 is taken from Speaker's table, read a first and second time, and committed.	Jan. 11, 1871.		Read 1st & 2d time.									
11			Senate bill 859 ordered printed by H. R.	Jan. 13, 1871.			X								
12			Reported back by Chairman of House Commis- sion on Coinage, Weights, and Measures (C. W. M.), Mr. Kelley, with "substitute;" substitute ordered printed and recommitted.	Feb. 25, 1871.			X	M. Kelley's substitute.							
13	42	1	H. R. No. 5 introduced by Chmn. Kelley, read twice, ordered printed and committed.	Mar. 9, 1871.		Read 1st & 2d time.	X					Cg. Glb., pt. 1, 1st Ses., 42nd Cg.	23, Col. 1	HR No. 6	
14		2	H. R. No. 5 reported back by Chairman Kelley with recommendation that it pass. Read and de- bated, 1st debate in H. R.; 3rd in Congress.	Jan. 9, 1872.		Read.			General explanations. Connection of Inspector of Mint at Philadelphia with bill. Civil service, tenure of office. Changes in value of coin; weight and fineness; new kinds of coin; coins of new impressions; old devices, nickel coin; compulsory recoinage; increase in denomination of nickel or base coin; increase in number of officers connected with coinage; re- demption of base coin; exchange of gold for other coinage; change in rate of redemption; profit fund; nickel "job." Salaries. Officers and salaries. Tariff, 1 col. plus; nickel "job," 2 col. plus.	1 1/2 6 6 4 3/4 7 3	The Speaker; Messrs. Kelley, Wood, Storm, Maynard, Potter, Gar- field, Dawes, Holman, Willard, Dox, Farns- worth, Burchard.	Cg. Glb., pt. 1, 2nd Ses., 42d Cg.	328- 329 943, Col. 2 993- 994	" " " " " " "	
15			Debate continued; bill recommitted.	Jan. 10, 1872.											
16			H. R. No. 1427 reported by Vice-Chairman, or Chairman pro tem of Com. on C. W. and M., Mr. Hooper of Mass.; introduces 384-grain silver dol- lar; read twice, recommitted, and ordered printed.	Feb. 9, 1872.		Read 1st & 2d time.	X					Cg. Glb., pt. 1, 2nd Ses., 42d Cg.	943, Col. 2	HR No. 1427	
17			Reported by Mr. Hooper under protest of Mr. McNeely. Bill, on motion of Mr. Hooper, made special order for March 12 and from day to day until completed.	Feb. 13, 1872.					Was Mr. Hooper authorized to re- port bill? Who attended committee meetings? Making bill spec'l order for Mar. 12.	2 1/2 1	The Speaker; Messrs. Kelley, Hooper, Mc- Neely, Potter, Kelley, Banks, Stoughton, Eld- ridge.	" "	993- 994	"	
18			Debated for third time in House, fifth time in Con- gress. For first, last, and only time in its history in Congress fact appears that the bill is hostile to standard silver dollar. Violent opposition led by Mr. Potter of New York, though mainly to other features of the bill (alleged nickel and salary "jobs," etc.)	Apr. 9, 1872.		First 7 sections read.		Rept'd with amend'ts. One amnt't accepted. Still others agreed upon in Com. of Whole.	Explanation of bill in detail by Mr. Hooper. Explanation of bill by Mr. Stough- ton covering general points, alloys, coins, wastage, tolerance, abrasion; gold dollar as unit of value; 384- grain silver dollar good for \$5 pay- ments, etc. "Jobs" and abuses charged and denounced by Mr. Potter et al. Govt. ownership of mines, 1 col.; International coinage, 1 col.— Cost of assaying, 1 col.—; Specie payment, 3 cols. Single vs. double standard. Hooper "substitute," passing with- out reading or debate. Questions on "substitute"—Assurances that it is unobjectionable.	10 7 1/2 12 2 4 1/2 3	The Speaker; Messrs. Stoughton, Hooper, Pot- ter, Kelley, McNeely, Wood, Sargent, Brooks, Beck, Randall, Lynch, Speer.	Cg. Glb., pt. 3, 2nd Ses., 42d Cg.	2304- 2317 3882- 3883 3986, Col. 2 203, Col. 3	" " " " " " "	
19			Bill reappears on eve of adjournment. Mr. Hooper offers a "substitute" which has been "sub- mitted to" members "who have taken special interest in bill," and which "meets with universal approbation," asks that it be passed without read- ing or debate, answers numerous questions. Bill partially (?) read, and passed by vote of 110 to 13.	May 27, 1872.		Partially (?) read. "Clerk be- gan to read," in interruptions. "I ask that 19th section be read again." Query: When read be- fore?		Hooper amnt't in nature of substitu te offered and passed.				Cg. Glb., pt. 5, 2nd Ses., 42d Cg.	3882- 3883	"	
20			H. R. No. 2934 read twice by title in Senate and committed.	May 29, 1872.		Twice by title.									
21		3	Reported by Mr. Sherman, and printed with amendments. Sen. Sherman hopes bill will not be read since it "has in substance passed both Houses."	Dec. 16, 1872.				Rept'd by Sherman withamnts	Whether bill shall be read; whether bill, or amendments simpl- ly, shall be printed.	3/4	The V-President; Sena- tors Sherman, Edmunds, Cole.	Cg. Glb., pt. 1, 3d Ses., 42nd Cg.	203, Col. 3	HR No. 2934	
22			Reported by Mr. Sherman with further amend- ments; bill with amendments ordered printed.	Jan. 7, 1873.				Mr. Sher- man rept's further amnts.	Amendments of S. Finance Com. considered. Other amendments. Abrasion; shall loss fall on indi- vidual or nation? Abolishing eagle; promoting in- ternational coinage. Gold certificates. Coinage charge.	10 3 1 2	The V-President; Sens. Sherman, Anthony, Cra- gin, Cole, Casserly, Fre- linghuysen, Nye, Pool, Stewart.	" "	363, Col. 2 661 & 668- 674	"	
23			Debated for third time in Senate; sixth time in Con- gress. Sen. Sherman speaks of provision in bill for 384-grain and also for 420-grain silver dollar. Nothing is said as to dropping 412.5-grain silver dollar. Bill passes.	Jan. 17, 1873.		Re a d twice (once in Com. of Whole.)									
24			Message from Senate to House that Senate has concurred in amendments of House to bill H. R. No. 2934.	Jan. 20, 1873.				S. amnts. report'd in House.				Cg. Glb., pt. 2, 3d Ses., 42nd Cg.	721, Col. 1	"	
25			Returned with amendments from Senate to House. Vice Chmn. Hooper desired that Senate amendments be printed and non-concurred in; and a Committee of Conference ordered. House voted, instead, to print bill with amendments.	Jan. 21, 1873.					Whether H. shall non-concur in S. amendments in bulk and without knowledge of their character; or whether amendments shall first be printed that H. may consider them.	1/2	The Speaker; Messrs. Randall, Myers, Hooper.	Cg. Glb., pt. 2, 3d Ses., 42nd Cg.	742, Col. 3	"	
26			Mr. Hooper asks that Senate amendments be taken from table and non-concurred in; and that a Committee of Conference be asked for. So ordered.	Jan. 23, 1873.										815, Col. 2	"
27			Names of managers of Com. of Conf. on part of House announced; viz.: Messrs. Hooper, Stough- ton, and McNeely.	Jan. 25, 1873.										860, Col. 3	"
28			Message from House to Senate announcing non- concurrence in Senate amendments and asking a conference.	Jan. 27, 1873.										868, Col. 3	"
29			Senate, on Mr. Sherman's motion, insists on amendments and authorizes Vice-President Colfax to appoint conferees. He appoints Messrs. Sherman, Scott, and Bayard.											871, Col. 1	"
30			Message from Senate to House that Senate in- sisted on its amendments to bill H. R. No. 2934, agreed to Conference, and had appointed Messrs. Sherman, Scott, and Bayard as managers on part of Senate.	Jan. 27, 1873.										893, Col. 2	"
31			Conf. Com. Report submitted by Sen. Sherman to Senate and concurred in without debate or ques- tion.	Feb. 6, 1873.										1150, Col. 1	"
32			Message from Senate to House, that Senate had agreed to report of Com. of Conf.	Feb. 7, 1873.										1184, Col. 3	"
33			Conf. Com. Report (identical with above, Step 30) submitted by Mr. Hooper to House and adopt- ed; and, as in Senate, without debate or question.	Feb. 7, 1873.										1189, Col. 1	"
34			Message from House to Senate that House had agreed to report of Com. of Conf.	Feb. 10, 1873.										1214, Col. 2	"
35			H. R. No. 2934 is reported to House as duly en- rolled, and is thereupon signed by the Speaker (Mr. Blaine.)	Feb. 12, 1873.										1294, Col. 3	"
36			Message from House to Senate that Speaker had signed enrolled bill (2934); bill is thereupon signed by Vice President (Mr. Colfax).	Feb. 12, 1873.										1282, Col. 3	"
37			Became a law by signature of President Grant. Message from President to House that he had approved and signed bill H. R. No. 2934.	Feb. 12, 1873. Feb. 14, 1873.								J. J. Knox in rept. as Comp. of Currency for 1876-1877. Cg. Glb., pt. 2, 3d Ss. 42nd Cg.	CLX 1364, Col. 3	"	

Note 1.—Proceedings in committee are not reported, and hence cannot be shown in the chart.

Note 2.—Sum total of numbers here given will not entirely cover space actually occupied in Globe, for reason that some space is filled with records of votes, and with miscellaneous matter not readily classifiable.

American Agriculturist, Vol. 57.
Scientific American, Vols. 73 and 74.
Breeder's Gazette, Vols. 27, 28 and 29.
Scientific American Supplement, Vol. 40.
Live-Stock Journal (London), Vol. 40.
Electrical Review, Vol. 28.
Engineering Record, Vol. 33.
Michigan Sanitary Convention, 1885-1893.
Journal of the Royal Agricultural Society, Vol. 6.
(3rd Series).

Our Country, Phelps.
A, B, C, in Cheese Making, Monard.
Dr. Barnardo's Homes, 28th Annual Report, 1894.
Taxation, Canfield.
Inheritance Tax, West.
Pasteurization.
Message of Jesus to Men of Wealth, Herron.
Civil Service Reform Sentiment, Justi.
Banker's Dream, Proctor.
Rhubarb Culture, Thomson.
Origin of Species, Huxley.
Fertilizer Experiments on Horticultural Crops, Bloomfield.
Our Country's Need, Parsons.
Northern Wisconsin, Henry.
Money and Prices, Prentiss.
Journal of Comparative Medicine and Veterinary Archives, Vol. 16.
Entomological News, Vol. 5.
Michigan Farmers' Institutes, 1895-6.
Science, Vol. 3.
Library Journal, Vol. 20.
American Bee Journal, Vol. 33.
Patent Centennial Celebration, 1891.
Botanical Gazette, Vol. 20.
Nature, Vol. 53.
Official Gazette of the U. S. Patent Office, Vol. 72.
City Government of Baltimore, Thomas.
Philosophical Magazine and Journal of Science, Vols. 40 and 41.
Agricultural Analysis, Vol. 2, Fertilizers, Wiley.
" " " " 1, Soils, Wiley.

Table Talk, Vol. 9.
Good Housekeeping, Vol. 18.
Analyst, Vol. 20.
Paper and Press, Vol. 21.
Steiner's Kegelschnitte, parts 2 and 3.
Minnesota Bureau of Labor Report, 1890, 1891-2, 1893-4, two parts.
New York Bureau of Labor Report, 1890, two parts.
Maryland " " " " 1893-4, 1895-6.
Ohio Labor Statistics, 1883.
Illinois Coal Report, 1887.
" Labor Laws, 1895.
Indiana Bureau of Labor Bulletins, 1-5.
Rhode Island Bureau of Labor Report, 1891-2, 1893-4, 1895.
Tennessee Bureau of Labor Report, 1893, 1894-5, 1896.
Table Talk, Vol. 10.
Forum, Vol. 21.
Consular Reports, Vol. 50.
Harper's Magazine, Vol. 92.
American Historical Review, Vol. 1.
Journal of the Chemical Society, Vol. 67, 68, parts 1 and 2.
Journal of the American Chemical Society, Vol. 17.
American Chemical Journal, Vol. 17.
Handbuch der Organischen Chemie-Beilstein.
Edinburgh Review, Vol. 183.
Journal Military Science Institution, Vols. 17 and 18.
Wage Statistics and Wage Theories, Mavor.
American Architect, Vol. 51.
Harper's Weekly, Vol. 40.
St. Louis Museum of Fine Art Catalogue.
Vivisection and Dissection in Schools.
Publisher's Weekly, Vol. 48.
Democratic Gospel, Tuttle.
Chapters on Silver, Miller.
Statesmen Three, Fisk.
Patent Office Gazette, Vol. 73.
Agricultural Gazette (London), Vol. 43.
K. S. A. C. Graduating Theses, 1895, Vols. 1, 2, and 3.
Starveant Prelimnaean Library.
State of Para.
Bolletino della R. Stazione Agraria di Madina, 1890.
Reports of Secretary of Agriculture, 1891-5.
Schedae ad Floram Exsiccata Austro-Hungaricam, Kerner.
Knowlton Papers.
Handbuch der Pflanzengeographie, Drude.
Monographia Festucarum Europaeae-Hackel.
Haberlandt Papers.
Just's Botanischer Jahresbericht, Vol. 21.
Peach Yellows.
Die Vegetation der Erde, Grisebach, 2 Vols.
Icones Fungorum, Vol. 2, Berlese.
Primitiae Monographiae, Rosarum, Crepin.
Flora of Colorado, Porter & Coulter.
Flora of Washington, Ward.
Darwinism, Wallace.

Industrial Training.

Closely adjusted to the course of study is industrial training in several of the arts, to which each student is required to devote at least one hour a day. Among the lines of training each student may select, with the approval of the Faculty, except in terms when special industrials are required. Young men may have farming, gardening, and fruit growing, woodwork and ironwork, or printing. Young women may take cooking, sewing, printing, floriculture, or music.

All young men must have their industrials for one term in the carpenter shop before completing the first year; and during the spring term of the second and the fall term of the third year, upon the farm, garden, and orchards. Young women take their industrial for one term of the first year in sewing, and for the winter and spring terms of the second year in the kitchen laboratory and dairy.

BUYING GROCERIES.

(Continued from page 33.)

serve a quickly prepared meal, will often be of more value than several times the cost of the can of meat, fruit, or vegetables so quickly opened and so readily prepared for the table.

In this climate, flour, corn meal, oat meal,—all the cereals in whatever shape for household stores,—should be purchased, only in moderate quantities; for in warm weather insect life is very vigorous, corn meal becomes rancid if much heated, and all the wheat products lose their "life" and become heavy and sticky. In damp weather, the starch in all these grains will absorb water and become less dry, the gluten will lose its tenacity, and bread made from such flour will never be so white and light as if made from fresh flour. Some flour dealers claim that flour does not deteriorate, but most housekeepers find that bread made from comparatively freshly made flour is best.

The buying of meats is a long subject, and one which accounts for the leak in many a housekeeper's accounts when she finds that she is spending too much money on her table. It is not usually economy to buy just meat for one meal at a time. In winter, there are times when a large piece of beef,—even a whole quarter,—can be used to good advantage in a family of even moderate size. The farmer's home does not see enough fresh meat, and often his table has less beef, either fresh or corned, than the good health of the family demands. A well-varied diet, where beef and mutton take the place of some of the pork so freely eaten, will often give better health and more strength for work.

The whole matter of economy is one which every person must work out for himself. What is real economy in one household may not be in another, though there are some general truths which always hold. Given a large family, plenty of store room, and a wise cook, it generally pays to buy the greater part of the groceries in large quantities.

Oriental Competition.

In an interesting study of what the distant future may have in store for us, Mr. Lafcadio Hearn, in "Out of the East," says:—

"Though the physical energies and the intellectual resources of the Occidental exceed those of the Oriental, they can be maintained only at an expense totally incommensurate with the racial advantage; for the Oriental has proved his ability to study and to master the results of our science upon a diet of rice, and on as simple a diet can learn to manufacture to utilize our most complicated inventions. But the Occidental cannot even live except at a cost sufficient for the maintenance of twenty Oriental lives."

In the, perhaps, not distant future, when we come into more direct competition with these Oriental workers, how are we to maintain the contest? Have we dug our own industrial graves in forcing our arts and our industries on these Oriental people, the Chinese and Japanese? The latter nation has already accepted our teaching, mastered our science, and learned control of our great industrial forces; and it has done so while preserving intact its own advantages in any industrial competition. According to Mr. Hearn, twenty Japanese laborers can live comfortably on what it takes to support one here. Suppose China, with its teeming millions, its greater physical endurance, and its even cheaper support, shall be forced in self-defense to adopt western industrial methods, and western armaments, what then? Is it not possible that the tables may be turned, and that we may be brought to face the problem how to save our civilization and our very existence?

We were disposed to amuse ourselves the other day with Li Hung Chang's peculiarities. But he represents a power in this world which may easily become, in the near future, menacing to the very existence of western civilization. All that is needed to make the Orient in the highest degree threatening is that China should follow in the footsteps of Japan.—Farmers' Home.

Farming for a Living.

There is no gainsaying the fact that if farmers would farm more for a living and not simply to make money, they would live better and make more money, too, says *Southern Cultivator*. The essential thing to do, and it is of prime importance, is to produce all the food crops on the farm that are necessary to sustain the necessary laborers and stock and a surplus for the market. On farms remote from market, farmers cannot successfully diversify their agricultural pursuits. With the establishment of good roads and manufacturing enterprises throughout the country, the demand will be increased and the ability to transport products enlarged. But it will pay the farmer to rotate his crops and diversify them sufficiently to meet his own wants at home. Let him not only build up his home, but his land. No handsome residence with all the evidences of thrift and happiness looks in place on a farm whose soil is depleted of humus, and given over to briars and brambles.

Plant Growth Culture a Commercial Article.

For several years much attention has been given in some of the New England agricultural colleges to the action of soil bacteria. Such an influence was recognized and had been most noticeable in the growth of leguminous plants, of which Dr. H. W. Conn has said: "This family of plants in some way does succeed in getting nitrogen from some source when we do not give it to them as food, and it must be that they get it from the air. If you plant peas in soil containing a certain species of bacteria, or at least certain species of micro-organisms, these micro-organisms crawl into the roots of the pea, and then begin to multiply inside the roots. The little roots begin to swell and there appear on them a lot of minute nodules, which have received the name of "root tubercles." It is found that wherever these root tubercles make their appearance the plant gets hold of nitrogen and grows well. Where these root tubercles do not make their appearance the plant is unable to get hold of the nitrogen unless it is fed to them. These tubercles are produced by bacteria and are the agencies by which in some way the pea gets nitrogen out of the air.

It has been found that the bacteria which produce these tubercles may be transported by taking the soil from one region to another. In growing soja beans, for three years prior to 1893, the Connecticut experiment station had not found tubercles on the roots of the plant. In that year a lot of seed was obtained of the experiment station at Amherst.

The roots of the crop from which this seed was saved were covered with tubercles. Six hundred pounds of soil taken from the Amherst field, where soja beans were grown in 1892, was applied to the plot of one-tenth acre when the seed was sown by the Connecticut station. A small quantity of this seed was also sown in the grass garden of the station quite a distance from the large plot, and in this case no imported soil was used.

On the plot where the imported soil was added the tubercles were abundant and the crop made a rank, vigorous growth and produced a good quantity of seed. The soja bean grown in the grass garden made a spindle growth and produced very little seed. Certain foreign scientists have pursued such investigation still further, and even so far as to be able to produce a culture that is known to produce certain results in plant growth. This has been named "nitrogen," and is now offered commercially. Arrangements have been made for its production with one of the largest chemical manufactories in Germany, the same which has undertaken to supply the medical world with the antitoxic serum for diphtheria treatment.—*New England Farmer*.

Has your boy or girl entered the state agricultural college, or some other institution of learning this fall? Too poor to send them? Not if they are possessed of health and energy, for they can earn enough to pay a large part of their expenses. Education is power. The youth who has to work for it makes it the most powerful. Where there's a will there's a way.—*Farm and Home*.

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A FUNDAMENTAL PROBLEM IN IRRIGATION.*

BY PRESIDENT GEO. T. FAIRCHILD.

IN the brief paper which I present this afternoon I intend to show my good will toward this association and its projects for irrigating our plains and upland prairies as well as our promising valleys. I believe that irrigation has its place in the economy of agriculture, as truly as any other device for making nature yield its reluctant service. If I shall say anything that may make me appear a doubting Thomas, in comparison with some of my enthusiastic neighbors or friends, I beg of you not to think that I would in any way be guilty of throwing cold water upon even a cold-water enterprise. I am simply thoroughly in earnest to find the real outcome for irrigation on the plains of Kansas, and if possible, to gain attention early to such lines of development as shall remain essentially permanent. I realize, as many of you do, that a few serious blunders in overestimates of results may damage the cause, possibly beyond recovery for many years. Dampened expectations are the worst possible substitute for a genuine irrigation that stays.

I shall make no attempt in this brief paper to suggest more than an outline of the principles which seem to me involved in our problem. Your own ingenuity will extend and apply them.

In a general way, the problem of irrigation, after the devices for furnishing water and distributing it are settled, is the same as for any enterprise. No enterprise will last or fulfill reasonable expectations which does not replace the capital involved, with a fair compensation for its use, sustain the amount of labor involved in its use on a scale of living equal to that maintained in surrounding portions of the country, and provide for possible savings against the proverbial rainy day, whether it rain pitchforks or sandstones, or encourage the accumulation of capital for further extension. Multitudes of experiments in agriculture, as in other enterprises, will fail in some of these particulars. But every student of agricultural welfare must, so far as possible, anticipate such failures and by skillful planning prevent them. So the ultimate problem in irrigation upon the plains and divides of Kansas is to so plan that the extra cost of capital in supplying water, and the extra labor involved in its application, may be fully met by the superior crop, and give a fair margin for so-called profit, or better, for saving.

To illustrate: If an irrigation plant is to be devoted to vegetable-raising, one must foresee to what advantage he can raise vegetables of various kinds, can market them without fail at a compensating price, and can adjust his labor to seasons and circumstances, so that he shall have a fair employment throughout the year. He must remember that this market is likely to be limited by extensive competition; that potatoes, cabbage, tomatoes, and all sorts of garden truck are easily multiplied in almost indefinite quantities, and that an immense population, producing other commodities to be used by exchange for these, is absolutely necessary to the success of the market gardener. For such a market, the conditions of Western Kansas are not as favorable as those of some of the mountain States and Territories, where a large proportion of the people are engaged in mining, lumbering, and manufacturing from the raw materials so abundant there. It is easy for a limited number of irrigation plants, skillfully managed, to supply the local market in any of our western towns. At the same time, the extension of irrigation generally must reduce materially the range of the market, which now depends largely upon the wants of ranchmen and the farmers themselves. Vegetables will never pay for transportation to great distances, except when they can be raised at trifling cost. They must always be marketed within a limited range. These, then, cannot be thought of as furnishing a sure promise of profit under any costly system of irrigation.

A similar question may be raised in regard to fruits. While their value makes it possible to reach a larger market, that world's market always fixes the price as low as the bulk of producers can bear, so long as the supply keeps near the demand. The tendency in this, as in vegetable-raising, is to increase the supply in anticipation of the demand. The long distance over which Western Kansas must transport its products, will render the cost much more costly before it reaches the consumers. This added

*A paper read before the Kansas Irrigation Association at Great Bend. Published also in the *Kansas Farmer*.

cost, however, will be borne by the producer, since the consumer will still measure value by the less costly product, so long as he can supply his wants fairly. We have no extra early or extra late season by which to take advantage of the first in the market, or the last to be had. A very large product would undoubtedly have to be utilized by processes of preserving, as canned or dried fruits, in which all the world can compete.

If we depend upon cereals, the transportation problem is less serious, since some of the grains will bear the longest transportation at little cost; and we are likely to be nearer the ocean highway in the future than in the past. But in such crops the pioneer world everywhere can compete. The rich lands of South America and Southern Asia, almost without price, and near a population ready for service at the smallest possible cost for living, will make competition of American farmers in the wheat market practically useless. How soon this will come, nobody can foretell, but it seems as certain as the transfer of the grain-raising center of the United States in the past from the Atlantic Coast to these western plains. The enormous advance in transportation facilities will hasten the time beyond exact calculation.

In a study of the statistics of profitable irrigation, furnished me by the chief engineer of irrigation in France, a transcript of which I have already presented to our State Board of Irrigation, I was especially struck with the fact that almost every instance of profitable irrigation in the south of France showed a dependence upon forage and soiling crops. This, of course, shows that the crops there raised are consumed as far as possible upon the premises, or near them. As most of the stock of France is kept by the soiling process, the irrigated fields maintain a larger quantity of stock per acre than any others. The products of the dairy and the stall are always marketable, and bring the largest pay for the labor expended. It seems to me that any permanent profit from our irrigated farms must come from a careful mixture of cropping and stock-raising. The condensed value in beef, butter, cheese, poultry, and eggs will bear transportation farthest; it affords the best possible combination for labor with fair compensation, and keeps the labor occupied the year round. The necessary feed for stock and poultry is easily insured, and capital can always be secured for such careful handling of stock as this would involve. I feel certain that those who set about the study of their immediate circumstances with reference to this solution of the fundamental problem of profit and loss will find their way safely along this line.

But there is another phase of our Kansas irrigation which suggests a somewhat different solution of the problem. Large portions of our country produce from time to time abundant crops, and will maintain in ordinary seasons from natural pastures considerable herds of stock. But every year there is a dearth of some of the satisfactory staples of home life, vegetables and fruits, and some years there is entire failure of every crop. To those who hold such lands in these high prairie regions, the irrigation of a few acres at a cost far exceeding any fair basis for profit, is like the insurance of property. It makes safe many undertakings in the way of farming which otherwise would be hazardous. It provides certain living for a family. It gathers the essentials of home-making, and cheers against despondency. Moreover, the greater part of the expenditure can be in the shape of labor at the odd moments and the unoccupied days and weeks so likely to occur in grain farming. All labor expended in this way is clear gain; for one of the chief sources of loss in pioneer farming is the want of profitable occupation during a large part of the year. A small irrigation plant of four or five acres, such as one good well may make, will provide a large part of the living for a family, by simply utilizing the waste time. The profit from such a means of culture, in things comfortable and tasteful, cannot be measured in dollars and cents. If our State Board of Irrigation proves feasible, at moderate cost, the raising of water from deep wells, they will have opened the way for a fair settlement of all our Western counties, and have given a natural solution to the fundamental problem suggested in this paper.

This natural solution promotes no boom in real estate, and is not likely to be overworked, with the result of disappointment. The ways and means may be imperfect at present, but the devices will surely

come; and a country which grows by the labor of its people is sure of all the progress it makes. A speculative energy which promises immediate fortune almost certainly brings successive periods of reaction, because of overestimate of chances. The average of profits will surely be maintained in the long run, and any proposition which ignores this fundamental truth should be questioned with utmost scrutiny. These prairies will be conquered by the careful, earnest workers who make the best of opportunities at hand, and irrigation will figure, not as the chief encouragement to energy, but as one of its principal props.

WINTER CLOTHING.

BY MRS. E. E. WINCHIP.

WITH the first chilly mornings of September, comes the thought that very soon we will have to put away the dainty muslins and pretty summer garments for the heavier and warmer ones needed in winter. Then the garments that were so carefully laid away from moth and dust during the summer months, are brought out and a careful inventory taken, in order to make everything possible out of the stock on hand. When this is carefully done, we commence by making a list of necessities; for they should always be provided for first. We must have warm, substantial clothing, remembering that good materials wear much better than poor, and are generally the most economical. It is better to wear an old garment a little longer, until one is able to purchase one of a good quality. It need not be very expensive, for good woolen goods can be bought for very little money, and will wear and retain its color much better than cotton and wool mixed.

In buying winter underclothing, the one thought should be to protect the body from the changes of temperature; for if the skin be properly clothed, one can then indulge her own fancy in the outer garments. One objection to woolen underwear is that it shrinks so badly in washing; but, with care, this can be avoided to a great extent. Next to wool, silk is, without doubt, the best, and for some whose skin is very sensitive, a mixture of silk and wool or cotton and wool will answer every purpose. Before being worn, they should be carefully gone over with needle and thread, to fasten the ends, sew on buttons, etc., requiring only a few stitches, while, if left until they rip, one will see an illustration of the old but true saying, "A stitch in time saves nine."

Shoes for winter should have heavy soles, which are much easier for the feet in walking.

Shirts should be made of light-weight but warm material. It is not the weight of the garment that gives warmth, but the texture and kind of material used. In purchasing materials for dresses, those to be worn in the kitchen and about the house work are better made of cotton goods. There is such a variety of heavier weights that will wear much longer and be warmer than common calico. They are easily laundered, and one can always look neat and clean in dress.

If, from last year's outfit, there are dresses with soiled spots but in good repair, send them to a professional cleaner, and he can clean them without taking to pieces. If it is necessary to remodel, rip them carefully, and all woolen goods can be easily washed with white soap and borax in soft water. They must be pressed immediately.

If it is found necessary to purchase a new dress, one of the first steps toward what we call a well-dressed woman, is to understand exactly what colors to select as well as the style of goods. The new novelties are pretty, and make beautiful dresses, but if one has to economize and make the same dress do for several seasons, some of the plainer goods are more serviceable. Always use care in selecting the linings; for on them depend the style and shape of the dress.

In purchasing a cloak, it is more difficult to decide just what is the best to buy. A woolen jacket or cape that is made of shoddy material is not worth the buying. We often find them covered with much trimming in order to disguise the foundation; but this is not easily done. A plain garment made of good material will be recognized without any label to tell what it is. Those made of fur are very serviceable, and will last for a number of years; but one should be careful to remove them upon entering a warm room. Dressing too warmly is as injurious as wearing too little clothing.

Good, healthful clothing should receive the careful attention of every intelligent woman. Great improvement has been made in the last century, and the bright, intelligent woman of today is far better and more comfortably dressed than was her grandmother or great-grandmother.

"ACCORDING TO HOYLE."

BY JULIA R. PEARCE.

SOMEONE has said, "Education often makes a straight-cut ditch of a free-meandering brook." Forceful, indeed, must be the character that can break away from routine, and assert itself for what it is worth, in this age of conventionalities. The affairs, customs, and prevalent opinions of each one's own little neighborhood make up his world. At every turn he is checked, until, by constant turning and shoving, if not by the educational methods used in school, then by public opinion as he grows older, he is finally guided into the groove in which it is thought he should run, and now, having all the spirit in him conquered, any wayward tendency to soar and sing properly "cold-watered," he settles down into the path and the gait set for him and ambles along in his little rut until his life habits are formed, and he gets so fond of his particular little groove, and his little groove gets so deep, that there is no getting him out of it. He even gets down in so deep he can't see out, and he thinks there is no way but his. He has reached that stage of development where he doesn't have to do any independent thinking. His opinions cannot be changed, and anything which he has not thought out for himself and forever settled, has been determined for him by convention and he need never exert his mind in the least.

A writer in the *Eclectic* claims much for this worthy institution of conventions in that it does save so much mental exertion, deciding for us what we should do on certain occasions under certain conditions, and just how it should be done, so that we can go through life easily and comfortably and never have a single original thought. Of course, there is a slight disadvantage in this. The theory has been advanced that both brain and brawn lose strength and become of a flabby quality from lack of use, and certain muscles and sometimes whole organs disappear, after a time, by continual disuse. Startling, isn't it, for some of us to think of?

Should one have any original thoughts on any subject, or, what is more to the point, should he give utterance to any sentiment not set down as the usual sentiment for properly regulated people to cherish, he has a rough time of it. We dress as others dress, no matter how ridiculous the fashion or useless the garment dictated. We greet people with the same set of conventional phrases which have done duty for generations. We eat certain kinds of food in certain ways, with certain utensils, with a certain twist of the fingers. Certain things we always eat first, and certain other things we always eat last; and these are matters determined not at all by what is best or by the inclination of those concerned. Society says a man must keep his coat on no matter what the temperature; a woman must keep her hat on at church; a man must take his off, and so on. And so much thought is given to the training in these conventionalities of life that the growth or culture of the inner man is lost sight of, and the real soul becomes dwarfed and distorted for lack of room and exercise.

You may have read of the man who wondered why it had been the custom for several generations for men to have two buttons at the waist line on the backs of their coats. There being no apparent reason for them being there, he asked his tailor, who said it was to "carry out the idea," whatever that may mean; but it must mean something, as there certainly was some good reason why millions of men should have gone about with two buttons sewed to the middle of their backs. As to the "shackles of conventions," in the matter of women's clothes, I am swamped to begin with by the multitude of examples that might be given. I should feel somewhat as King Canute must have felt when he commanded the sea to be calm, and when it would not, bade his soldiers scourge it with whips—that the attempt was somewhat futile.

Our style of dress, what we eat and what we drink, what we do and say, and what we may think, are governed by the conventionalities of the people among whom we may happen to be cast. Even "morals, like fashions, change their color and complexion," as seen from different points of view. What is permissible among one people of a high grade of civilization may be highly improper among another.

There is much to be said in favor of conventionalities. Everyone will acknowledge that certain rules and regulations are necessary to keep oiled the machinery of society, and the most of us, set adrift without its aid, would have a hard time of it. Some people wouldn't be anything without it. With no force of their own, no material to fall back on, convention is their salvation. To do as others do is their only hope, and they go gracefully through life as very worthy people, because they haven't sense enough to

make a mistake. You always know where to find them. They will never shock you by doing anything unusual, or by going off on a tangent.

Then there are the people who do go off on tangents—who need the check of public opinion to keep them in their orbit. They would do more foolish and perhaps harmful things than the foolishness of conventionalities compelled them to do. As to conventional manners, what would we do without them? The graceful act of a gentleman when he lifts his hat to a lady on the street is what is left of the custom when men bared their heads and prostrated themselves before their superiors. At first they lay flat in the dust; then, as rulers became more lenient, their subjects only got down on their knees and kissed their monarch's sandals; next they merely bowed very low with uncovered head, and now all that remains is the simple act of pointing with the forefinger to the rim of the hat to indicate what the wearer would do if he had time or were not too tired! And the old idea of a salute to a superior has gone clear over the line, and now means simply the deference of the "lord of creation" to the "weaker sex." Yet it is graceful, and anything that adds to the gracefulness of the present generation, let us encourage. If there could only be something of the kind to help out the other half of the population!

The cosmopolitan, who has learned the ways and manners of more peoples than his own, has learned that it suits his purpose best "to do when in Rome as Romans do." It is a rash individual who dares assert that his way of doing a thing is better than the established mode. And to assert one's independence for the mere sake of doing so is nothing but bravado. If no benefit is to be derived, the force necessary to go against the current is wasted. While it may denote a high form of courage, a soul above convention, to sometimes defy custom, it certainly would seem best, where no good was to result, to walk where many feet had walked before and we knew the footing to be sure. To defy the conventions of civilized life, which demand a certain kind of clothing on certain occasions, and to go to one's work wrapped in the graceful folds of a window curtain, might be more comfortable and less trouble than the prescribed style; yet, when one can weigh the advantages and disadvantages of this new order of things, he might finally come to the conclusion that the "combined wisdom of the ages" might be at the bottom of things after all, although many foolish customs were floating carelessly on top with the lighter weight material. Those who feel the pressure of convention might by judicious gleanings take for their use those things useful or beautiful, discarding only the foolish.

Sometimes, oftener perhaps than any of us realize, some timid soul hides his light and goes daily through a tread mill of conventionalities because he hasn't quite the strength to rise above them. No great enterprise was ever accomplished without someone having the courage to do things the best way, whether it was the customary way or not. He who lives up to his ideas of right and wrong, never allowing the question of "what is customary in such cases" to bias his decision, who doesn't do things in a certain way because he is expected so to do, will run up against obstacles at every turn. He will find that most people regard the rules of convention or any other rules made by the majority somewhat as did the Pilgrim Fathers of old, who "proclaimed that the colony should be governed by the laws of God—until they could have time to make better."

Advantages Not All in the City.

A writer thinks that it is a mistake of the residents of large cities to suppose that they enjoy peculiar advantages over the people living in the country in the increased facilities for travel, for mental culture, and for the refining influences that are generally supposed to accompany it, that are to be found most largely developed in the city. "There are," says the same writer, "opportunities in working on the farm to earn a comfortable living and save something every year for the many thousands in the cities who now spend every dollar they earn, and who are sure to continue to do so while they expose themselves to the city's temptations. It is a mistake to suppose that in the country, and even on the farm, there is not better opportunity to really cultivate the mind than there is for thousands who have no time to read or think in the city. The variety which nature offers is a constant stimulus to thought. There is far less routine work on the farm than there is in the monotonous clang of great machinery, which almost regulates itself with the smallest care on the part of the operator. The person who is really anxious for mental improvement can find it in either situation, but its best opportunities will be found in the country."

Calendar.

1896-97.
Fall Term—September 10th to December 19th.
Winter Term—January 5th to March 27th.
Spring Term—March 30th to June 10th.
June 10th, Commencement.
1897-98.
Fall Term—September 9th to December 18th

To School Officers.

The College Loan Commissioner has funds now to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioner and the State Agricultural College. Address C. R. Noe, Loan Commissioner, Leon, Kan.

GENERAL LOCAL NOTES.

Fifty-two students go home to vote tomorrow.

V. R. Shintaffer, First-year, enjoyed a visit from his father on Thursday and Friday.

John Cyrene of Randolph visited friends in the city and at College from Saturday to Monday.

Prof. and Mrs. White are the happy parents of a second boy who reached their home on Thursday.

W. O. Peterson, Fourth-year, went to Marysville Thursday, to take the county teachers' examination.

President Fairchild preached at the Congregational Church yesterday forenoon in the absence of the pastor, Rev. Mr. Tunnell.

D. P. Guy, First-year, drops out this week to take his brother's place in the office of the *Syracuse Journal*, published by his father.

A common sight last Wednesday morning was a Junior with pale countenance and inflamed eyes, ready to drop off into a peaceful snooze at any moment.

Hallow e'en passed off quietly at College as well as in town, the youngsters having evidently expended their surplus energy in the political demonstration during the day.

The Congregational ladies surrounded a camp-fire at Prof. Mason's on Saturday evening, and toasted 'taters and marshmallows which they distributed to visitors—for a consideration.

David Wilson, First-year student, who left College two weeks ago on account of sickness, is reported by the *Frankfort Review* as being very sick of typhoid fever at the home of his father, Rev. Joseph Wilson.

Ex-Regent Lemmon gains mention in the despatches as having introduced Hon. Thomas Reed at Republican meetings in San Francisco and Santa Rosa. Mr. Lemmon is editor of the *Santa Rosa Republican* and a member of the California Republican Central Committee.

Mr. Beverly and daughter, Miss Florence, showed two English visitors through the College buildings on Tuesday last—Messrs. Chas. Knowles of London and John Fallows of Liverpool, who are making a hurried trip across the continent. Mr. Knowles is a cousin to Miss Beverly, and did much to make pleasant her visit in England last summer.

The debate between the Students' Silver Club and the McKinley Club Monday evening in Union hall was a success in every way. The Silver Club was represented by Messrs. Cheadle, Hepworth, and Hall, and the McKinley Club by Messrs. Bishoff, Noble, and Farley. The speakers were well received by a large and good-natured audience which distributed its applause impartially. Prof. Olin presided.

Photographs of the College buildings have been in great demand of late, being wanted for illustration in educational lines. Prof. Carruth of the State University is soon to contribute to the *New England Magazine* an article on the educational history of Kansas, which is to be illustrated by half-tones of the College; photographs of experimental fields have been asked for by the American Book Company to illustrate a new geography; while W. L. Bell & Co. of Kansas City have made and printed a large engraving showing a group of buildings, which is to be a part of a geographical chart of Kansas and Missouri.

Last Friday was the twenty-fifth anniversary of the marriage of Mr. and Mrs. Wm. Baxter, and their friends to the number of thirty-five gathered at the residence of Mrs. Caleb Smith and arranged a surprise for the couple. The company was made up of the W. C. T. U. ladies, Rebekahs, members of the Congregational Church, and the College Faculty. After the guests were assembled, Mr. and Mrs. Baxter were sent for, and during the whole afternoon were the guests of honor at a happy gathering. The W. C. T. U. ladies furnished a choice collation of dainty viands. Besides the congratulations, Mr. and Mrs. Baxter have a number of useful and handsome silver presents as mementos of the occasion.—*Nationalist*.

The newspapers and private letters announce the death, in Washington, D. C., of Hon. Edwin Willits, Assistant Secretary of Agriculture during the administration of President Harrison. Mr. Willits dies at the age of 66 years, having had a most honorable career in legal, educational, and official relations. For many years he practiced law in Monroe, Michigan, from whence he was elected to Congress. A place on the Michigan State Board of Education he had held years before. On his return from Congress, he was placed at the head of the Michigan State Normal School, where he wrought such good work in organization as to be chosen for a similar work as President of the State Agricultural College at Lansing. After four years of earnest work there, he was called to the

United States Department of Agriculture under Secretary Rusk. Many will remember him for his excellent address on Commencement week at this College in 1887. His whole-hearted, earnest work made every acquaintance a lasting friend.

The Fourth Division of the Third-year Class occupied the public hour in Chapel Saturday afternoon in the following program: "Last Charge of Ney," G. G. Menke; "An American Idea," E. B. Patten; "The Temperance Cause," W. M. Sanderson; "Cataline Denounced by Cicero," L. A. Nelson; Quartette, "We Meet Again, Boys," Messrs. Patten, Bower, Smith, Avery; "A Good Name," A. A. Paige; "Evil Effects of Party Spirit," Wm. Poole; "The New South," O. I. Purdy; "The Progress of Reform," F. D. Waters.

GRADUATES AND FORMER STUDENTS.

F. E. Way, Second-year in 1890, is now a practicing physician at Randall, Kans.

D. C. Jenkins, student in 1887-8, is Principal of Schools in Coal Creek, Colo.

Mary Paddleford, Second-year in 1895-6, visited with College friends on Saturday.

Grace Secrest, '96, is now one of the county's pedagogues. Her school is near Cleburne.

D. C. McDowell, '91, a miner of Cripple Creek, visits the home folks for a few days.

Lou Stingley, student in 1894-5, has joined her mother in Denver. The family plan to make that city their home.

E. W. Holler, special student last year, is here to vote. He is a member of the Senior Class in the college at Fairfield, Iowa.

N. Will, special student in 1894-5, now attending the State University, is visiting with his brother, Professor Will, for a few days.

J. F. Odle, '94, after spending a portion of the summer with sisters and relatives in Indiana, has taken a place as herdsman at the Austin Jersey Farm, one of the leading dairy farms near Kalamazoo.

Lieut. Albert Todd, '72, Professor of Military Science and Tactics at his alma mater from 1881 to 1884, writes from Fort Hamilton, N.Y., where he has been with the First U.S. artillery for several years, asking that his address be changed to St. Augustine, Fla.

Geo. C. Wheeler, '95, was at the College on Saturday on his way to Burlington to vote. He has ample opportunity to study human nature in his work as sleeping car conductor on the New York and New Haven Railway, with excellent library advantages at either end of his run, New York and Boston. He will return in a few days for a longer visit.

The Third-Year Class Party.

Never was a party more thoroughly enjoyed than that which the Juniors held at the residence of Mrs. Stokes on Tuesday evening.

The historical and political knowledge of each was thoroughly tested in his anxiety to know the name of a character pinned upon his back, which was to be found by questioning his neighbor. Bryan, Shakespeare, McKinley, Sulla, and others reigned peaceably side by side.

Many displayed their artistic talent in the representation of songs upon a black-board, which showed a genius that would develop a Beard, a Frost, or an Apelles.

To judge from their ability to recognize popular advertisements, they were students of the late periodicals. A cake of "Ivory Soap" was awarded the successful contestant.

Delicate refreshments were served at a proper intermission. Upon each napkin topics of conversation were printed. As an evidence of the quality and quantity of the refreshments, one lad disposed of six pieces of cake.

All were crowded into the parlors to enjoy snatches of ditties, love-songs, and melodies when, "Blest be the Tie That Binds," cut short the endless source of merriment.

JEANETTE CARPENTER.

Notes from the Library.

A new letter press stand was added to the office furniture last week. It is the work of one of the students in the wood shop, and is a lasting representative of good, thorough workmanship.

There is no handsomer volume in the Library than Wm. H. Edwards' *Butterflies of North America*, which was purchased last week. It is bound in half morocco and finished in full gilt. Besides a large amount of text, it contains fifty-one plates. The figures are life-size and colored by hand from nature.

The Graduating Theses of the Class of '95 were recently bound by the State Printer, and are now to be found in the Library. They are contained in three large volumes, and will, no doubt, be used as "models" by succeeding classes.

The three tables in the reading-room have been reserved for the reference books for the students in General History, and another for the books used by the students studying United States History. One evidence of the work may be obtained from the fact that these books are never deserted, but are constantly being perused from daylight till dark.

The classes in English Literature have, the last week, been studying the works of Burns, Wordsworth, Coleridge, Scott, Lamb, Bryon, and others. A

special class in Literature are at present studying Emerson. The books by these authors are not permitted to remain on the shelves, as they are somewhat limited in number, and a book when returned is often wanted by several students.

The number of books drawn each day gradually increases. For the last week, the average has been sixty daily. Nearly all are for use in class or literary society work.

I. A. ROBERTSON.

COLLEGE ORGANIZATIONS.

Student Editors.—W. B. Chase, Emma Finley, E. Shellenbaum

Y. M. C. A.—President, S. J. Adams, '98; Vice-President, G. D. Hulett, '98; Recording Secretary, O. S. True, '98; Corresponding Secretary, J. M. Pierce, '98; Treasurer, R. B. Mitchell, '99.

Y. W. C. A.—President, Emma Finley; Vice-President, Maggie Correll; Recording Secretary, Ethel Wolfley; Corresponding Secretary, Mary Waugh; Treasurer, Lucy Cottrell.

Webster Society.—President, W. B. Chase; Vice-President, J. B. Norton; Recording Secretary, S. Nichols; Corresponding Secretary, F. Zimmerman; Treasurer, C. Masters; Critic, R. J. Peck; Marshal, C. D. Lechner; Board of Directors, R. W. Bishoff, S. B. Newell, R. B. Mitchell, C. C. Jackson, P. K. Symms.

Ionian Society.—President, Winifred Houghton; Vice-President, Emma Finley; Recording Secretary, Jessie Bayless; Corresponding Secretary, Bonnie Adams; Treasurer, Dora Shartell; Critic, Myrtle Hood; Marshal, Clara Long; Board of Directors, Harriet Vandivert, Minnie Copeland, Olive Long.

Alpha Beta Society.—President, C. W. Shull; Vice-President, Grace Dille; Recording Secretary, G. D. Hulett; Corresponding Secretary, Elsie Waters; Treasurer, Kate Zimmerman; Critic, Alice Shofe; Marshal, Anna Streeter; Board of Directors, J. M. Westgate, Marion Gilkerson, G. D. Hulett, Sophronia Channell, May Pierce, T. J. Rumold, Florence Harling.

Hamilton Society.—President, W. L. Hall; Vice-President, C. B. Ingman; Recording Secretary, A. D. Whipple; Corresponding Secretary, Guy F. Farley; Treasurer, B. F. Durant; Critic, H. M. Thomas; Marshal, T. E. Thomas; Board of Directors, O. E. Noble, Chairman, H. McCaslin, Secretary, G. G. Menke, Wm. Poole, Wm. Anderson.

October 24th.

The President being absent, Vice-President Ingman called the Hamilton Society to order. Nearly all the members were in their places, and a goodly number of visiting ladies occupied the back seats. The Society was led in prayer by E. O. Farrar. F. O. Woestemeyer was then installed as Treasurer. Messrs. Secrest, Dalrymple, and Corbett were then received as members. The program was opened by H. C. Avery with the oration of Mark Anthony. J. C. Tulloss read an essay entitled, "Success is Obtained, not Given." His thought was well followed out and expressed in the best of language. Mr. Rogler introduced the Hamilton Quartet, who favored the Society with a couple of vocal selections. The debate, question, "Resolved, that a man is justified in disobeying a law to which he is morally opposed," was argued affirmatively by S. J. Adams and B. H. Shultz; negatively, by E. O. Farrar and J. W. Adams. The Society decided in favor of the affirmative. Mrs. Kedzie was called upon, and she responded by reciting a few of the incidents connected with the early history of the Hamilton Society. She offered a few words of advice and then entertained the Society with a description of the play of *Macbeth* as seen in London. The play was so vividly portrayed that the Society felt they had almost been treated to a sight of the great production itself. J. M. Yard read a selection and the program was closed with an oration by E. A. Nelson. He told of "Bleeding Kansas," her early history, and her advancement. The remainder of the evening was occupied with the discussion of unfinished business.

G. F. F.

October 24th.

After two weeks intermission, the Alpha Betas met at half past one, there being no Chapel exercises. One week ago the Society was adjourned that the members might have an opportunity to attend the Y. M. C. A. Convention. The program of the day was opened with congregational singing, after which Mr. Clothier led in devotion. Two more new members, Messrs. S. B. Jolley and C. R. Hamen, were initiated. Maud Manley entertained the Society with a well-delivered declamation. Mr. Martin followed with a story in which he represented a small boy as describing an "eventful" ride. A quartette, Messrs. Hulett and Thompson and Misses Reed and Blachly, gave a selection which was enjoyed by all. A second story was read by its writer, Minerva Blachly, the adventures of two children, adrift in the Johnstown flood. The debate which followed was on the question, "Resolved, That it is the fault of the young ladies, that young men use tobacco." Miss Reed on the affirmative said young ladies did not use their influence as much as they should against this habit. Instead of saying "No" when a young man asks if he may smoke in her presence, too many will allow it; thus giving her sanction to what she knows is wrong. The young man would be ashamed of his young lady friend should she be seen going down the street smoking a cigar. Then, why should it not be the same with the young man? Girls, let your influence be against such a habit. Mr. Hulett, presented the negative side. He said that in many cases, boys had acquired this habit before being influenced by the young ladies. The habit once formed, could not be broken by later influences alone, unless the individual had the will and courage of his own to stop it. Everyone has an influence over some other person, and if this influence is not for the best, we are accountable for it not being so. Then if the young lady does not use her influence against the use of tobacco whenever she can, she is just so much the cause of its continued use. The cause does not lie wholly with the ladies, then; it goes beyond their influence, but they can help if they will. Both sides of the question were well presented, and then it was thrown open for general discussion, a number of the members speaking on it. Society was next entertained with a piano solo by a visitor, Miss Hathaway. The Gleaner was presented by its

editor, Eva Philbrook, with the motto, "Protection and Sound Money." The "auction" announced through its columns brought smiles to the "most sober minded" Alpha Beta and visitor. Recess was followed by an instrumental duet by Miss Mather and E. Shellenbaum. The Society showed its appreciation by hearty applause, which continued until the musicians were on the floor again. After a short time devoted to extemporaneous speaking, the usual order of business was taken up and the question of issuing tickets for the joint entertainment was discussed. A majority seemed to favor the tickets. At half past three the order of adjournment was reached, and President Shull announced that "we are now adjourned."

E. L. W.

October 24th.

Last Saturday the Ionians adjourned as soon as called to order, and today all the girls and many visitors assembled eager and expectant. Miss Rhodes presided at the piano, and all sang with a will. Miss Minnie Spohr led the devotional exercise. The Society gladly received Miss Minnie Hall as one of its members. The program was unusually good, and if possible every number should receive special mention and praise. It was opened by a piano solo. Miss Symms followed with an amusing declamation. Miss Tacy Stokes, dressed in a mother Hubbard and little hood, impersonated "A little girl whose brother had just left his curls and dresses and become a boy," and was accompanied on the piano while she sang of her troubles. A good number of the Oracle was read by Miss Hilda Olson. Miss Edith Huntress sang a beautiful solo. This was followed by the second chapter of the book begun two weeks ago, by Miss Spohr. This chapter proved as interesting as the first, and we wonder if it will continue. The musical parody by Miss Lyman was something new, and was enjoyed by all. Miss Houghton was in her drollest mood, and her declamation was a success. A piano duet closed the program. The names of Misses Cole and Shick were proposed for membership. The roll call with quotations closed the exercises of the day.

B. F. A.

October 24th.

The gavel of Pres. Chase started the best and most enjoyable session of the Webster Society this year. After roll call, J. A. Lovette led in prayer. C. D. Blachly was initiated, and now marches with the Webster band. The debate was on the question, "Do savage nations possess the full right to the soil?" The affirmative was represented by W. M. Ireland and J. A. Butterfield. The Indians were the first inhabitants here; some old settlers recognized this, as Wm. Penn. who bought their land. Savages cultivated small fields, as much as they had tools for; they progressed as much as their conditions would let them; Cortez in Mexico found them quite civilized; we have no more Indian raids now. The law that "Might makes right" is a barbarian sentiment, and is no way to educate the savages. The negative, by A. E. Poston and A. S. Berry, argued that the Indians did not need but one-tenth of the land, and the white race needed the rest, and have built the grandest nation on the globe with this land; "only the fittest shall survive;" the only good Indians are the dead ones. England takes the savages' lands in Africa; ancient history teaches this to be right, and beside the savages are paid for their lands. The affirmative "carried off the cap." The first oration this fall was delivered by Schuyler Nichols, entitled, "Are we an educated people?" All this lacked as a chapel oration was the Cadet Band. After recess, we were honored with the presence of a score and half of lady visitors. Miss Edith Huntress was introduced by J. A. Conover, music committee, treating us to a fine piano solo. She would not respond to an encore. "Our greatest glory does not consist of never falling, but in rising when we do fall," by Confucius, was the motto of the Reporter by L. A. Nelson. It was a spicy, up-to-date edition. Mrs. Kedzie was called upon, and kindly gave us a talk. After reviewing the first days of the Websters on College Hill, she spoke of Oxford College. She made us think there is no place like home. Mrs. Kedzie and Miss Huntress were given a full vote of thanks for entertaining us. A short adjournment was taken to let the ladies go as the lights went out, after which the dynamo was started again and ran until adjournment.

F. Z.

October 31st.

The Y. W. C. A. met at the usual time in room S. The meeting was opened by singing. Miss Minnie Spohr, the leader, took for the subject of her short talk, "Be of good cheer: It is I, be not afraid." After a prayer by Miss Spohr, the Association sang three verses of "Sunshine in the Soul." Following were several short prayers led by Miss Emma Finley. Twenty-eight new members were elected, and after the initiation of those present the Association was adjourned. The new members are: Ollie McCurry, Myrtle Harner, Susie McEathron, Ollie Voiles, Minnie Copeland, Myrtle Coll, Grace Spalding, Jessie Shick, Grace Allingham, Nellie Dyer, Cora Swingle, Jessie Bayless, Janette Perry, Clara Castle, Maud Zimmerman, Barbara Welter, Cornelia Weeks, Ethel Day, Charlotte Berkley, Mabel Curry, Minnie Howell, Lillian Hathaway, Clara Jaedicke, Grace Bolton, Grace Dille.

Weather Report for October, 1896.

BY C. M. BREESE, OBSERVER.

Wheat goes into November in fine condition, ground being well soaked and the plant having made a good, vigorous growth. Stock was brought in from pastures from the middle to the end of the month, and scarcely any are now out.

Temperature.—The mean temperature was 53.09°, which is 1.16° below normal. There have been 24

warmer and 13 cooler Octobers on our record. The highest temperature was 92°, on the 1st; the lowest, 28°, on the 24th—a monthly range of 64°. The greatest daily range was 46°, on the 1st; the least, 4°, on the 10th. The mean daily range was 26.6°. The warmest day was the 1st, the mean temperature being 69.25°. The coldest day was the 20th, the mean temperature being 40.75°. The mean temperature at 7 A. M. was 43.84°; at 2 P. M., 66.45°; at 9 P. M., 51.03°. The mean of the maximum thermometer was 68.58°; of the minimum, 42°; the mean of these two being 55.29°.

Barometer.—The mean pressure for the month was 28.839 inches, which is .029 inch above normal. The maximum was 29.213 inches at 7 A. M. on the 6th; the minimum, 28.257 inches, at 2 P. M. on the 29th; monthly range, .956 inch. The mean at 7 A. M. was 28.869 inches; at 2 P. M., 28.815 inches; at 9 P. M., 28.833 inches.

Cloudiness.—The per cent of cloudiness was 32.26. This is a trifle below normal. The per cent at 7 A. M. was 35.48; at 2 P. M., 30.64; at 9 P. M., 30.64. Five days were entirely cloudy; three were five-sixths cloudy; two were two-thirds cloudy; two were one-third cloudy; three were one-sixth cloudy, and sixteen were clear.

Precipitation.—The total rainfall was 5.13 inches. This is 2.85 inches above the normal. The table following shows monthly rainfall for 1896, the normal, and departure from normal:—

	Normal.	1896.	Departure from Normal.
January	.77	.31	-.46
February	1.06	.56	-.50
March	1.30	.87	-.43
April	2.72	5.49	2.77
May	4.13	7.41	3.28
June	4.43	2.63	-1.80
July	4.73	5.39	.66
August	3.61	2.26	-1.35
September	3.05	5.06	2.01
October	2.28	5.13	2.85
Totals	28.08	35.11	7.03

Wind.—The wind was from the south twenty times; southeast, twenty times; north, fifteen times; southwest, fourteen times; northwest, ten times; west, eight times; northeast, 4 times, and from the east 2 times. The total run of wind was 6535 miles, which is 340 miles below the average. This gives a mean daily velocity of 210.81 miles, and a mean hourly velocity of 8.78 miles. The highest daily velocity was 485 miles, on the 27th; the lowest, 61 miles, on the 13th. The highest hourly velocity was 32 miles, between 1 and 2 P. M., on the 30th.

The following tables give comparisons with preceding Octobers:—

October.	Number of Days.	Rain in inches.	Per cent of Cloudiness.	Prevailing Wind.	Mean Temperature.	Maximum Temperature.	Minimum Temperature.	Mean Barometer.	Maximum Barometer.	Minimum Barometer.
1858	6	5.67	42	SW	56.38	92	30	28.76	29.10	28.32
1859	2	.64	42	SW	53.87	84	28	28.76	29.10	28.32
1860	1	.42	10	SW	56.31	91	29	28.76	29.10	28.32
1861	6	2.12	42	NW	55.67	84	32	28.76	29.10	28.32
1862	4	1.62	31	S	58.98	94	16	28.76	29.10	28.32
1863	3	2.40	42	NW	47.80	79	11	28.76	29.10	28.32
1864	4	.68	46	NW	48.92	73	25	28.76	29.10	28.32
1865	3	.43	22	S	57.53	88	30	28.76	29.10	28.32
1866	3	.91	29	S	56.31	92	29	28.76	29.10	28.32
1867	5	2.51	37	S	52.43	79	32	28.76	29.10	28.32
1868	6	.43	24	SW	44.05	79	19	28.88	29.20	28.50
1869	9	5.06	51	SE	56.35	78	30	28.76	29.10	28.32
1870	9	1.20	32	SW	55.81	91	31	28.76	29.10	28.32
1871	5	2.76	22	S	54.98	91	27	28.76	29.10	28.32
1872	2	.42	42	SW	51.23	84	14	28.76	29.10	28.32
1873	3	.22	39	SW	56.14	84	15	28.81	29.18	28.30
1874	3	1.04	38	SW	53.04	88	23	28.78	29.17	28.32
1875	3	1.61	41	SW	53.59	83	21	28.74	29.33	28.13
1876	3	9.07	66	SW	53.18	80	27	28.76	29.06	28.39
1877	4	1.06	29	SW	54.67	89	17	28.74	29.26	28.16
1878	4	2.63	37	S	60.84	86	24	28.70	29.17	28.40
1879	7	2.20	44	SW	52.10	81	23	28.69	28.98	28.21
1880	4	4.27	59	SW	56.54	88	32	28.65	28.96	28.07
1881	4	3.54	38	SW	57.71	83	32	28.62	28.92	28.10
1882	12	7.05	55	E	51.45	87	31	28.68	29.10	28.10
1883	6	2.22	20	S	60.06	87	33	28.57	28.88	28.34
1884	4	1.72	22	NW	50.62	85	20	28.61	28.87	28.37
1885	3	2.42	16	SW	60.93	91	25	29.03	29.45	28.49
1886	2	2.20	18	...	51.00	91	16	29.09	29.54	28.52
1887	4	2.74	29	...	52.10	82	23	28.90	29.16	28.55
1888	3	1.42	40	E	52.21	96	26	29.12	29.40	28.76
1889	4	1.99	29	N	53.33	86	23	28.87	29.29	28.50
1890	4	2.45	13	SW	53.16	89	22	29.03	29.4	28.66
1891	4	1.32	19	S	55.67	93	23	28.90	29.21	28.55
1892	2	.71	11	S	55.41	95	24	28.84	29.31	28.44
1893	4	1.69	22	S	57.4	93	24	28.76	29.14	28.30
1894	3	.53	25	S	51.09	87	21	28.94	29.25	28.45
1895	5	5.13	32	S&SE	53.09	92	28	28.84	29.21	28.26
1896	168	86.50	1214	...	2061.6	...	...	728.28	...	...
Means	4	2.28	32.8	SW	54.25	...	...	28.81	...	...

WIND RECORD.

October.	Total Miles.	Mean Daily.	Maximum Daily.	Minimum Daily.	Mean Hourly.	Maximum Hourly.
1889	4854	156.59	349	82	6.53	26
1890	7008	226.06	460	48	9.42	34
1891	6919	223.19	560	75	9.30	30
1892	7039	227.06	729	68	9.46	41
1893	8741	281.96	500	108	11.75	32
1894	7903	254.90	562	92	10.62	34
1895	5998	193.48	395	86	8.06	28
1896	6535	210.81	485	61	8.78	32
Sums	54997	1774.05	...	...	73.92	...
Means	6875	221.75	...	...	9.24	...

Accessions to the Library.

- Smithsonian Contributions to Knowledge, Vols. 30, 31, and 32.
Tuberculosis Investigations, United States Dept. of Agriculture.
Minnesota Bureau of Labor Report, 1895-1896.
Index to Foraminifera, Smithsonian Institute.
National Democratic Party, 1896.
Fiat Money Inflation in France, White.
Commercial Fertilizers, U. S. Dept. of Agri.
Organic Matter in the Air, Bergey.
Argon, Rayleigh & Ramsay.
Minnesota Bureau of Labor Report, 1890, 1891-2, 1893-4, pts. 1 and 2.
Tennessee Bureau of Labor Report, 1893, 1894-5, 1896.
Maryland Bureau of Labor Report, 1893-4, 1895-6.
Connecticut Bureau of Labor Report, 1885, 1886, 1887, 1888, 1889, 1890, 1891 pts. 1 & 2, 1892-3, 1894, 1895.
Connecticut Report of Agriculture, 1895.
Colorado Bureau of Labor, 1893-4.
Pennsylvania State College Report, 1895.
Kansas Bureau of Labor Report, 1894.
Kansas Agricultural Report, 1893-4.
Memorial Addresses on the Lives and Characters of Z. B. Vance, et al.
Congressional Record, Vol. 28, Index pts. 1-7.
Darstellenden Geometrie, Wiener, 2 Vols.
Geschichte der Mathematik, Cantor, 3 Vols.
Rhode Island Agricultural Experiment Station Report, 1895.
The University Geological Survey of Kansas, Vol. 1.
Report of the Commissioner of Education, 1892-3, Vol. 1., 1893-4, Vol. 2.
Report of the Maine State College, 1895.
Humanitarian Money, Martin.
Cow-Culture, Kansas State Board of Agriculture, 1896.
Microscopes and Laboratory Apparatus (Catalogue), Bausch & Lomb Optical Co.
One Hundredth Anniversary of the Laying of the Corner Stone of United States Capitol, 1793-1893.
Flora of West Virginia, Millsap & Nuttall.
Papers on Algæ.
Monographiæ Phanerogamarum, Vol. 9, De Caudolle.
Jamaica Institute Lectures.
Forest Influences, Fernow.
Papers on Mushrooms, Taylor.
Pollination of Pear Flowers, Waite.
Rhode Island Bureau of Labor Report, 1889, 1891-2, 1893-4, 1895.
New York Bureau of Labor Report; 1890, pts. 1 & 2; 1891, pts. 1 & 2; 1892, pts. 1 & 2; 1893, pts. 1 & 2, and 1894.
Michigan Bureau of Labor Report, 1895, 1896.
Michigan Factory Inspection Report, 1894, 1895, 1896.
North Carolina Bureau of Labor Report, 1887, 1888, 1889, 1891, 1893, 1894, and 1895.
North Dakota Agriculture and Labor Report, 1890, 1891-2, 1894.
Indiana Bureau of Labor Report, 1883, 1885-6, 1889-90, 1891-2, 1894.
Indiana Bureau of Labor, Fifth Biennial Report, 1893-4.
Iowa Bureau of Labor Report, 1888-9, 1893, 1895.
West Virginia Bureau of Labor Report, 1893-4.

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ELEMENTARY INSTRUCTION IN DRAWING.

BY PROF. J. D. WALTERS

DRAWING is both a science and an art. As a branch of school work, it is not simply geometry, nor is it a matter of mere skill; it is not a kind of object lesson, nor can it be taught by lectures, or learned by reading art topics. Its purpose is not primarily to produce artists or artisans. In the public school, drawing has a far greater mission: it is a means for the harmonious development of the child. Keeping this in mind, the teacher will see that its educational value, like that of every other study, must depend chiefly on the discipline it affords; that it must be taught systematically, and that the methods of instruction have far more to do with the desired results than has the height of the course. All pupils alike need such a course of training, and as all have the ability to study arithmetic or geography, so have all the ability to succeed in a properly laid out and energetically taught course in drawing. The idea that special talent is required to learn drawing has long since been exploded. It was partly the result of a wrong conception of the ends to be obtained, and partly due to poor teaching and poor text books. Most of these books were prepared by enterprising designers and lithographers who had had no previous experience as teachers. They pushed the pupil too rapidly into difficult artistic work and disgusted him, the teacher, and the parent with insufficiently comprehended and poorly executed results. They tried to teach art academy work without laying the necessary foundation.

The relation of the subject matter of elementary art education is presented in the following scheme:—

Elementary Art Education.	(A)	1. Observation. 2. Modeling. 3. Geometry. 4. Projection. 5. Construction. 6. Perspective.
	(B)	7. Model and Object. 8. Light and Shade. 9. Color. 10. Geometric Design. 11. Floral Design. 12. Principles of Design. 13. Harmony of Color. 14. Historic Ornament.
	(C)	Study of Decorations.

The classification, however, does not imply that the work of instruction should be taken up in this order; neither does it imply that all subjects must be treated exhaustively. Every course naturally begins the work with subjects (1) and (2) and follows these with exercises in (10) and (11), while (6), (7), and (8) are usually taken up in the high school. To higher art education must be left the study of such subjects as shades and shadows, reflection, areal perspective, the physical properties of light, the physiology of light, historic art, artistic anatomy, etc.

The most valuable subject for study in the intermediate and grammar school is undoubtedly the surface ornament, and every course of instruction should consist chiefly of such exercises. In Central Europe, where formerly much time was given to model and object drawing, there has lately been a radical revival of surface designing in the lower and intermediate grades. Many of their modern courses (see Hänselmann) exclude linear perspective, and sketching from the model or object entirely from the elementary school curriculum. In the primary grades the presented designs should be of a strictly geometrical character, such as polygons, foils, rosettes, various symmetrical line combinations, tangential connections of curves, Gothic letters, and outlines of very simple objects "in the flat." These should be drawn alternately from prints of different sizes, from dictation, from the black-board, and from memory.

The intermediate grades should take up the surface and relief ornament based upon vegetable forms.

The study of ornamental plant forms is an excellent means for the development of perception and execution. It adds the elements of elasticity and motion to the conception of mass and stability, gained through the instrumentality of purely geometric ornament. Like the rhythm of music and poetry, the rhythm of the elastic line develops the resonance of the child's soul for the beautiful.

The notion that there should be no copying of prints in any way or form, and that the pupil should work entirely from the object or from nature, is erroneous. Such work is not only highly educational if taught with proper variation and care, but it is absolutely necessary to provide the foundation for higher work, especially for the work in mechanical drawing, which is much in need of the elastic pencil touch gained by drawing gradual freehand curves.

Satisfactory original work in decoration, though it is one of the ends to be attained, is usually beyond

the capacity of the common-school pupil. It should not be demanded without sufficient preparation. The geometric base form and the ornamental unit must always be given, or well indicated, and an ample discussion of the involved principles of decoration must inevitably precede the problem. Where a design requires the repetition of a unit, the pupil may be permitted to prepare and use a stencil plate made of a small piece of stiff tracing paper. He should not be asked to do what the practical designer never does.

There is, perhaps, no better means for explaining methods of execution and principles of decoration than the blackboard. It is not necessary to draw all exercises there, yet the thoughtful teacher will give his pupils frequent chances to see how figures are laid out and finished. Such occasional "chalk talks" will make the study of drawing a delight for instructor and learner. It is also an excellent method to have some of these blackboard figures copied upon paper in order to teach the class to reduce forms, or, after the construction has been explained, to have them drawn from memory. Variety of treatment is absolutely necessary in all school work.

Dictation exercises may be given from time to time with good results. If properly conducted, they will force the undeveloped pupil to use his imaginative faculties as no other work can do. The teacher must be careful to use the most positive language in formulating the dictation.

Object drawing and the study of linear perspective are usually failures in primary, intermediate, and grammar classes, occasional exceptions notwithstanding. Individual instruction, on the other hand, often succeeds fairly well, partly because the pupil may possess special aptitude, and partly because he and his teacher usually give an increased amount of time and energy to this work. Success under such altered condition proves nothing. Object drawing requires above all a set of carefully selected large models, or objects. Small models of card board, placed close to the eye, are inadequate, because of the changing of form with every minute change of position of the eye. Large models, i. e., boxes, barrels, chairs, benches, tables, implements, baskets, wagon wheels, and the like, cannot be used where the desks are fastened to the floor in straight rows, as they necessarily are in the ordinary school room. These objections do not apply to leaves, flowers, fruits, and all objects that do not require the application of the intricate deductions of linear perspective.

Instrumental drawing should not be taken up too early—not before the seventh or eighth school year. Neither should it be combined with freehand work, as has been done by many educators; but it should form a separate and systematically taught branch of instruction. There are many good reasons for this. In the first place, it is not well to waste the time of the pupil with work in applied geometry which he can not fully comprehend, and which, at the proper time, will be easy for him to master. In the second place, good work in instrumental drawing demands a drawing board, solid tools, and good paper. To require pupils to work out problems in small and tightly stitched books, with ten-cent compasses and two-cent rulers, is silly. All mechanical drawing should be exact, correct, and much of it should be finished in ink. What is worth doing in this branch is worth doing well. Instrumental drawing, to be valuable, must be disciplinary, and involve shop methods and the use of men's tools—not boys' tools. It is distressing that such implements are not as cheap as they might be, yet, the same kit, if carefully handled, can be used by successive classes for half a dozen years. A good draughting outfit, consisting of compass, drawing pen, drawing board, T-square, and ambro-triangle, will last a lifetime. But little boys and girls cannot comprehend the purpose of such tool-drawing, and they cannot be expected to take proper care of good tools. It may also be remarked that instrumental drawing, practiced at too early a period, is frequently ruinous to the eye; it makes a "Bad Eye Factory" of the schoolroom.

It is for these and other reasons that drawing, like language or geography, should be divided into separate topics that can be taught in separate terms. In English work, one term is given to composition, another to syntax, or rhetoric, or history of literature, etc. The subjects are not mixed, and it is possible to cover the progress of the pupil or class with a simple

*See a recent article by Dr. Scripture of Yale University, entitled, "The Bad Eye Factory," in the *Outlook* for Feb. 29th, 1896.

statement on the part of the teacher. Why should drawing be the only branch that is presented chaotically, with decoration, construction, perspective, and object drawing stirred into one nameless *mixtum compositum*?

POPULAR INSTRUCTION IN DAIRYING.

BY PROF. C. C. GEORGESON.

MR. J. H. MONRAD, the noted expert in dairy matters, of Winnetka, Illinois, in a private letter to the writer, has outlined a plan for popular instruction in dairying which he thinks can be made even more beneficial to the State at large than to emulate the dairy schools of Iowa, Wisconsin, and Minnesota, and he thinks it is especially adapted to the newer Western States where wealth is less in evidence than in the older States. In brief, the plan is this: A traveling dairy school is organized by engaging a competent practical dairyman with sufficient scientific training not to make "breaks," and if necessary allow him an assistant. Furnish them with a complete traveling outfit of dairy utensils necessary to make butter and cheese on a small scale, and then advertise for bids for dairy schools in various parts of the State. The community where the school is held should furnish a suitable hall or large room to serve both as a creamery and auditorium; they should furnish not less than 600 pounds of milk daily and the necessary ice and hot water, and above all there should be enrolled not less than ten nor more than twenty pupils. The school should last but one month in any one place, and the instruction consist in daily practice in making butter and cheese from the milk furnished, and in the afternoon lectures on the theoretical points involved; while on Saturday, when the farmers come to town to do their marketing, the school should be turned into a general farmers' institute, with dairying, the care of dairy cattle, and the use of the Babcock test as the main subjects.

This plan, it appears to the writer, should appeal with much force to Kansas farmers. Those who appreciate the advantages and possibilities of dairying in this State have long demanded that a dairy school should be established in connection with the Agricultural College, which demand the Legislature has so far failed to heed, and no instruction in dairying is given within the borders of the State. This plan has the obvious advantages (1) that it does not limit the instruction to the few young people who can be sent to the college, but proposes to bring the school to the very doors of the farmer, so to speak; (2) this makes it possible for those to attend who could not be spared to go away from home and take a course at the College; (3) it makes it possible for the farmers themselves and their wives to improve their knowledge of dairying; (4) it involves no outlay for traveling expenses and board on the part of pupils, as they could all board at home, and (5) it would awaken an interest in the dairy business, which means better cattle, better farming, a better soil, and more ready money, as no other plan could.

What will be the expense of such a traveling dairy school? Mr. Monrad estimates that the chief instructor could be engaged for \$1,200 a year and expenses while traveling, and his assistant, if he needed one, for about \$600 and expenses, or say a total of \$2,400 a year for instruction, as they would probably not be out more than six or eight months each year. The apparatus he estimates could be bought for about \$400. It should consist of all the necessary utensils for the manufacture of cheese and butter on a small scale, cheese vat, cheese cups and press, also cream cans, hand separator, and cans for creaming milk both by shallow and deep setting, milk tester thermometers, etc. The total expense would certainly come inside of \$3,000 annually. Could not the State afford that outlay for the development of dairying when it has for several years appropriated that much or more for the single item of experiments with chinch bugs? While the latter was doubtless a wise expenditure and the appropriation put to good use, does any one question that a traveling dairy school as here outlined would not result in still greater gains of material wealth to the State?

Of course the instruction ought to be given under the auspices and oversight of the Agricultural College, and the headquarters of the instructors should be at the College, where they could be employed in teaching, and in carrying on dairy experiments when not in the field. A ten or twelve weeks course in dairying, after the model of the short dairy courses which are so popular in other States, should be given at the College each year for the benefit of the students who attend here. The instructors would thus have full employment the year round.

The traveling dairy school is not an experiment. Its success has been demonstrated both in Canada and

England, where schools on a somewhat similar plan have been in progress for some years past.

WORK AS A BUILDER OF CHARACTER.

BY ALICE RUPP.

A LONG, warm day in July, and a very hard one for Mary. The assistant bookkeeper is off on a vacation, hence she must do the work of two. The last account is balanced; the great clock in the steeple strikes the hour; six of the deep, reverberating strokes fall upon Mary's ear. Before the last echo has died into silence the books are in the safe, all papers in their respective niches; and Mary, tired, impatient, and peevish, is homeward bound. Entering the cool, pleasant sitting-room, she tosses her hat on the table, exclaiming by way of emphasis, "Work! work! work! from eight in the morning till six in the evening; and all for what?" "Something to eat and to wear." "Does it pay?" "Is this vain thing called life worth the living?" "When I am so weary, emphatically, No!"

A moment's thought and consideration will reveal to us many thousand Marys who, like our Mary, regard work only in its mechanical relations—a sort of routine grind of physical machinery to which the steam or power is applied at a certain hour in the morning, and relaxed at a certain hour in the evening. Such persons can readily see how work provides food and clothes. They may be able to look farther, and see how it moves the whole machinery of the universe; "how it creates a nation's wealth and builds up the power of material civilization;" but beyond this their thoughts do not penetrate. Their analysis of the subject is made independent of the dissecting light of the X-rays; hence the heart of the problem around which are centered the many beautiful relations which work bears to the formation of character and the future welfare of the individual is still hidden under the concentric layers of a rough exterior. Thus, having a wrong conception of work, an appreciation of its moral good is never realized.

Work does feed and clothe all, provides homes for all, furnishes all with the necessities of life, and for many the luxuries. But is this all it does? Is not this provision for the mere animal nature its lowest mission? Has it not a higher trust in being a promoter of the moral and spiritual interests of life? "An idle brain is the devil's workshop;" again, "Satan finds something for idle hands to do." Then give brain and hands work; because work holds from vice by promoting virtue, it strengthens the will by teaching perseverance and the obedience to higher authority.

Patient reader, did it ever occur to you that difficulties are really and truly our very best friends? They make us strong by calling into being powers that would otherwise have remained dormant. All are familiar with the old adage, "Necessity is the mother of invention," which, interpreted, means only this: we never know what we can do till called upon to act. So these very difficulties—positive hardships, they sometimes seem—are to each individual what electricity is to the car: they do not create any new power, but they do stir, excite, awaken all the indolent, inert energy in the system.

Clearly can it be seen why boys coming from meager homes, with but few exceptions, make the world's strongest men. The very pressure of environment so crowds their physical capabilities upon each other as to form a solid wall of power. Rarely is a man raised from the mediocre to the acme of success by the magical charm of good luck; nor is it usual for him, by one quick and mighty leap, to spring into the leadership of society. Not only is time demanded, but work—hard, patient, earnest work is demanded of him who is destined to do something for the advancement of his race. It was the perils of the Civil War that made of Grant, Sherman, and Lee great generals. Hard work developed in the awkward boy, Abraham Lincoln, a character so strong, so sturdy, so noble, that he was fit to pilot the Ship of State through the turbulent waters of four years. Florence Nightingale and Jenny Lind are two illustrious examples with whom work was a pleasure and the endurance of toil remarkable, and there is no point on this side of the mystic river at which, with profit to the individual, industry can be changed for idleness or work for laziness. He who subsists upon the means accumulated by another is nothing more than a human parasite. He may do no positive harm in the world, neither does he accomplish any visible good; no monuments are erected by any act of his that shall perpetuate his name even in the memory of his own small circle. As each day presents numerous living examples of the lazy, indolent, sluggish lives indulged in by the offsprings of wealth, it requires no mental analysis to understand and appreciate the saying, "Prosperity, like mere physical beauty, has

ruined more young people than it has ever helped or promoted."

True work, it matters not into what class it falls,—for today all labor is classified,—never debases the mind; but, instead of this, is continually calling out the intelligent qualities of our being, and trains them for vigor and scope in other departments of life. From whence come the inventors of today—from the capitalist, the merchant, the clerk? Ah, no; they are evolved from the woodman at his bench, the blacksmith at his forge, the electrician with his apparatus around him, or from any mechanical genius, whatever his tools may be; therefore, work does surely test judgment and opinions; it does stimulate the intellect; it does keep attention alert; it does exercise skill and ingenuity; it does awaken thought and quicken its functions. If the work engaged in fails to awaken these operations of the mind, then does it soon degenerate into a dull routine, leaving the manufacturer as narrow as the cloth he weaves, the moulder as small as the brass he fashions, while the farmer sees only in the soil the accumulation of dollars and cents as a compensation for the plowing, the sowing, and the reaping, each, as it were, allowing, through habit and perfection in mere mechanical skill, the mind to sink into a rut of sluggishness, where, with no higher inspiration, it feeds upon its own visionary sorrows, disappointments, and ill usage, till the individual loses courage and trust, imagines that the whole universe is out of order, and can only be restored to equilibrium by some violent outburst of concerted action.

Granted that some work is more intellectual than others, need any one kind be necessarily deadening to the intellect? Men and books are not the only teachers. Nature is full of all sorts of knowledge and problems. All that a mind open to instruction, anxious to learn, burning with the desire to know, has to do is but to seek; counsel and aid are to be had for the asking. In fact, something can be learned from any work, as there are natural laws connected with the most common-place occupations, to which, if the mind were directed, would prove a constant source of intellectual progress. We have been taught that Burns saw and felt poverty as he followed the plow. Bunyan, the Bedford tinker, must have thought as he worked to accomplished such results as "Pilgrim's Progress." Pallisay, the potter, became the celebrated French enameleur through the clay he moulded. Numerous examples might be cited in proof of the fact that the mind need not necessarily be satisfied with the work of the hand. Often through lonely lanes away from the throbbing pulse of general humanity, while the hand slowly performs its daily toil, the mind is leading the individual up the steep of fame.

However, there is the possibility of overworking both mind and body. This should be strongly guarded against. Even the motive power of machinery is the better for having rested occasionally. The mainspring of a watch, it is said, is greatly benefited by spending all its strength, and failing thereby to keep the machinery in motion, securing for itself a rest or a cessation of labor from running. This need of rest is especially true of the human family; the strong muscles of man and beast become fatigued, and give pain as a result of incessant toil and work. The farmer rests his fields this season that they may be the more prolific the next. The great Ruler of the Universe gives rest to the earth because it needs it at times, in the season that the harvest is not crowned with abundance. Fruit trees that are loaded one year have often but little fruit the following. This same principle of nature is taught us more or less in the passing seasons, with their peculiarities, every rolling year. The winter that succeeds the beautiful autumn but prepares the earth, with its bleak winds and rain and snow and ice, for the development of spring and summer. All work and no play makes a dull boy of Jack. Therefore, work and rest; a field that has duly rested yields a bountiful harvest.

PLAN OF OUR SIXTH STEER-FEEDING EXPERIMENT.

BY PROF. C. C. GEORGESON.

WE have been making preparations for another series of steer-feeding experiments for some weeks past. Fifteen three-year-old steers, which are to be used in the experiment, were purchased a month ago and have been on preliminary feed since, in pasture and yard. Ten of them were dehorned when bought, and the remaining five have been dehorned here. They are all natives raised within a dozen miles of Manhattan, though not on the same farm. In breeding, twelve of them are grade Short-

(Continued on page 44.)

Calendar.

1896-97.
Fall Term—September 10th to December 19th.
Winter Term—January 5th to March 27th.
Spring Term—March 30th to June 10th.
June 10th, Commencement.
1897-98.
Fall Term—September 9th to December 18th.

To School Officers.

The College Loan Commissioner has funds now to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioner and the State Agricultural College. Address C. R. Noe, Loan Commissioner, Leon, Kan.

GENERAL LOCAL NOTES.

Mrs. Crise visited Chapel Saturday afternoon.

Mr. and Mrs. Wolf were visitors at Chapel on Saturday afternoon.

E. M. Amos, First-year, drops out of College to travel for a portrait house until the first of January.

Mr. and Mrs. Orvin Pierce, of Genoa, Ills., spent a few days last week with their children in College. They were enroute to Healdsburg, California, with the expectation of making it their home.

The *Kansas Farmer* this week publishes two papers read before the Kansas Irrigation Association at Great Bend—"The Pump Problem," by Prof. Hood, and "Wheat Under Irrigation," by Regent Hoffman. The first named has appeared in these columns, and Mr. Hoffman's paper is published this week.

Now that the campaign is a thing of the past, the students, regardless of political preferences, show a desire to take up with renewed energy that other "campaign of education," which, though never lost sight of in the excitement of the past three months, has been somewhat neglected. Better lessons and better recitations may confidently be expected.

The program for the joint session of literary societies on the evening of November 14th is rich in promise, and the event is looked forward to with much interest. Tickets have been issued in sufficient number to fill the room. It must be remembered that only holders of tickets will be admitted, and those of our friends who are not so favored will save themselves needless trouble by keeping this fact in mind.

Last Saturday Rev. R. D. Parker was 70 years old. The day was celebrated by a gathering of old settlers, members of his congregation when he was pastor of the Congregational Church. He received several appropriate presents. Mr. Parker's many friends will be glad to know that his health is gradually improving. He attended church last Sunday, for the first time in several months.—*Republic*. Mr. Parker was a Regent of this College from 1870 to 1873.

The Second Division of Seniors occupied the public hour in Chapel Saturday afternoon in the following program: "Training the Attention," Mabel Crump; "Strategy: Its Principles and Uses," F. V. Dial; "Light From Prison Walls," Grace Dille; "Cycles in the World's History," E. Emrick; Music—Vocal Trio, Misses Pfuetze, Perry, and Lyman; "The Origin and Use of Slang," Anna Engel; "Perseverance Secures Success," Emma Finley; "Have You Ever Seen Them?" Philip Fox.

President Fairchild and Professors Mason and Georgeson left on Saturday for Washington, D. C., to attend the tenth annual convention of the Association of American Agricultural Colleges and Experiment Stations. The first two are delegates from the College, while the latter attends in his official capacity, as Chairman of the Section on Agriculture and Chemistry. President Fairchild will present a paper on "What shall be taught in our Colleges of Agriculture?" Prof. Mason, on "Teaching of Industrial Horticulture in Agricultural Colleges;" Prof. Georgeson, on "How shall selling milk on the basis of quality be accomplished in the retail trade?"

At the October meeting of the Manhattan Horticultural Society, Prof. Mason read a paper, "Forest Tree Culture in Kansas." He mentioned the objects for which trees are planted here—for beauty, shade, shelter belts, fuel, etc., and gave a list of the best trees to plant. Plant those best adapted to our soil and climate. For shade, plant elm, boxelder, ash, and oak. White elm is one of the best for upland planting. Cottonwood, maple, and boxelders need more moisture. Scotch and Austrian pines are both hardy, and seem well adapted to this climate. Prof. Popenoe said in his paper on "Best Ornamental Shrubs," that it was a supplement to tree planting, and combinations of trees and shrubs were necessary to produce desired effects. Shrubs were valued for their flowers, foliage, or autumnal beauty. A list was given of the best to plant—Japan quince, spirea, lilac, honeysuckle, barberry, weigelia, syringa, hydrangea, althea, bitter sweet, clematis, trumpet creeper, and wistaria, also many varieties of roses suitable for planting here. Plant new bushes occasionally; you will get better results.

GRADUATES AND FORMER STUDENTS.

G. W. Finley and H. N. Rhodes, both of '96, visited College on Saturday.

Martha Dean Campbell, Second-year in 1890-91, was married, October 28th, at Wall Street, Linn County, to Mr. Guy M. Hallam.

C. S. Evans, '96, a member of the U. S. Army Hospital Corps, has been transferred from Fort Snelling, Minn., to Fort Assiniboin, Montana.

Mrs. Ella M. Gale-Kedzie, '76, is mentioned by the *Michigan Agricultural College Record* as one of four

ladies who recently gave an art exhibit at Lansing, Mich.

Isaac Jones, '94, having finished his work for the season as Superintendent of the irrigation plant at Oakley, is at the College for a few days before visiting home.

Z. E. Wright, student in 1889, visits College today with his wife, on their return from the western part of the State to their home in Conneaut, O. Mr. Wright is employed on the Lake Shore & Michigan Southern Railway.

COLLEGE ORGANIZATIONS.

Student Editors.—W. B. Chase, Emma Finley, E. Shellenbaum

Y. M. C. A.—President, S. J. Adams, '98; Vice-President, G. D. Hulett, '98; Recording Secretary, O. S. True, '98; Corresponding Secretary, J. M. Pierce, '98; Treasurer, R. B. Mitchell, '99.

Y. W. C. A.—President, Emma Finley; Vice-President, Maggie Correll; Recording Secretary, Ethel Wolfley; Corresponding Secretary, Mary Waugh; Treasurer, Lucy Cottrell.

Webster Society.—President, W. B. Chase; Vice-President, J. B. Norton; Recording Secretary, S. D. Nichols; Corresponding Secretary, F. Zimmerman; Treasurer, C. Masters; Critic, R. J. Peck; Marshal, C. D. Lechner; Board of Directors, R. W. Bishoff, S. B. Newell, R. B. Mitchell, C. C. Jackson, P. K. Symms.

Ionian Society.—President, Winifred Houghton; Vice-President, Emma Finley; Recording Secretary, Jessie Bayless; Corresponding Secretary, Bonnie Adams; Treasurer, Dora Shattell; Critic, Myrtle Hood; Marshal, Clara Long; Board of Directors, Harriet Vandivert, Minnie Copeland, Olive Long.

Alpha Beta Society.—President, C. W. Shull; Vice-President, Grace Dille; Recording Secretary, G. D. Hulett; Corresponding Secretary, Elsie Waters; Treasurer, Kate Zimmerman; Critic, Alice Shofe; Marshal, Anna Streeter; Board of Directors, J. M. Westgate, Marion Gilkerson, G. D. Hulett, Sophronia Channell, May Pierce, T. J. Rumold, Florence Harling.

Hamilton Society.—President, W. L. Hall; Vice-President, C. B. Ingman; Recording Secretary, A. D. Whipple; Corresponding Secretary, Guy F. Farley; Treasurer, B. F. Durant; Critic, H. M. Thomas; Marshal, T. E. Thomas; Board of Directors, O. E. Noble, Chairman, H. McCaslin, Secretary, G. G. Menke, Wm. Poole, Wm. Anderson.

October 31st.

President Shull rapped for order in the south Society room at the usual hour. After a familiar song, in which all joined, Mr. Jolley offered prayer. Three new members then cast their lot with the Alpha Betas, Misses Shull and Prichard and Mr. Forisan. The program of the day was opened with an essay by Etta Barnard, in which she gave an interesting account of "Glaciers." This was followed by a declamation by Mr. Ingram. Lucy Cottrell, in a reading, gave some thoughts on the "Results of labor, and what it has achieved." The question, "Resolved, That the average stump speaker does more harm than good," was debated on the affirmative by H. D. Orr; Miss Mather upholding the "stump speaker." Good points were brought forth on both sides. The Society was next entertained with music, a violin duet by Messrs. Rogler and Lease. The "Gleaner," edited by Mr. Shellenbaum, was read by Mr. Hulett, the editor being necessarily absent. Some of the subjects considered were, "The sleeping 'Chem.' student," "Scene on the train," and "Notes." All enjoyed the next number very much—music by Misses Perry, Pfuetze, and Lyman. After a short recess, roll call showed more absences than usual, perhaps accounted for by the fact that political excitement was running high in the City. P. H. Rader discussed the bright side of "Country life." Under the order of new business, a letter of greeting from Mr. Norton was read. After a short business session, the Society adjourned.

E. L. W.

October 31st.

Today, the Ionian girls met alone. It seems a little odd not to see any boys present. A most interesting and beneficial session was held. Miss Houghton called the Society to order, and the meeting was opened with the usual numbers, song and prayer. Miss Shick and Miss Cole were initiated. The program which followed was only inferior to the program of last week. Miss Smith had charge of the one-minute speeches. Among those who responded were Miss Spohr, who spoke on freehand drawing, Misses Lyman, on flowers, Miss Pfuetze, on Halloween, and Miss Emma Finley on the Joint Session. At the close of these little talks, Miss Correll read a pretty allegory. A vocal trio was rendered by Misses Pfuetze, Lyman, and Perry. Everybody appreciated Miss Spohr's "Something on the Joint Session," and perhaps some applied her sarcastic remarks at home. Among the articles in the Oracle was a letter from Rome in which some good advice was offered and also an interesting description of the catacombs was given. There was, too, an amusing little story of a halloween surprise. Two contributors sent "don'ts" so we were well supplied, but we cannot help feeling that a few "do's" would be suggestive and helpful. Miss Mary Norton gave us something really new as she promised, and we enjoyed it as we only enjoy the new. The principal topics of discussion in the business session were concerning the rearrangement and refurbishing of the Society room and the various arrangements for the Joint Session were made. After the assignment of duties and roll call, the Society adjourned.

B. F. A.

October 31st.

A small but enthusiastic assembly of Websters was called to order by Vice-Pres. Norton. After reading of minutes, W. M. Ireland led in devotion. Messrs. Bunch and Postlethwaite were elected to membership. The debate for the evening on the question, "Resolved, That the United States should aid Cuba in her struggle for independence," was argued affirmatively by P. K. Symms and F. B. Moreland; and negatively by C. D. Lechner and W. E. Miller. The affirmative argued that the United States has never taken up other countries' troubles, and that now is a poor time to begin; that the only way to aid them would be to go to war with Spain; that we should aid the suffering Armenians in preference to aiding

the Cubans; that the Cubans, if made free, could not maintain a republic; that the United States should not enter into a rebellion because she was herself, during the Civil war, in the same condition that Cuba is at present. The negative said that we should go to war with Spain. They have broken our treaties and have insulted our officers. Cuba is a profitable friend to the United States. She aids us by her products. She also aids us in our trade with Mexico and neighboring countries. Spain has abused the natives of Cuba. Has discouraged their education in order to keep them in subjection. But they have a small republic in central Cuba, and are able to uphold a government of their own if given an opportunity. The negative was given the decision of the society. H. S. Goddard showed his ability as a declaimer in a comic selection, "Niche Von Staw." An impersonation given by W. H. Young gives us an insight into what the Webster Society proposes in this line. The Reporter, filled with good things, was edited by J. W. Harvey. L. M. Werts as music committee introduced some very good violin music. The remainder of the evening was taken up in the regular business of the Society, and in finding where-in lies some future talent.

J. E. T.

Dairying in Kansas.

The object of publishing the information presented in this report is not the inauguration of any creamery or cheese-factory boom.

It is not to lead any one, even for a moment, into the belief that dairying, in any line, presents an easy or short road to wealth, however high the prices that may prevail at a given time.

On the other hand, it is insisted that most of the work connected with dairying is hard and disagreeable; that it must be performed every day, Sundays as well as week-days, and can never be put off until tomorrow; that it requires the strength of a man with the patience of a woman, along with skill, cleanliness, and brains.

Kansas has more than half a million milch cows and could as readily maintain ten times that number, having an average producing capacity 100 per cent for each. Undoubtedly the most of those furnishing milk for factories give a much smaller return than they should, and as a rule only a fraction of those used in private dairying are more than tolerable.

Upon the milk of such, limited in quantity and quality, farmers' wives, with insufficient, unsuitable equipment, and unfavorable surroundings, expend wearying and wearing labor to make butter that, from being in small, uneven lots and most improperly and unfortunately cared for, is a drug in nearly every market, often handled only under protest, generally graded low, and eventually sold for shortening or to grumbling consumers at prices which mean no adequate compensation to any one.

Such a condition of affairs suggests room for great and much needed improvement. If accomplished, it will mean millions of dollars added to the State's assets through the production of high-class staples, for which our capacity is practically immeasurable. If the counsel and suggestions here brought together from the highest obtainable sources lead to better results through improved methods, and are helpful in permanently advancing the standard of the Kansas cow and cow owner, until they produce two pounds of delicious, best-priced cash butter or cheese in lieu of the one pound of 6- or 8-cent grease offensively and perennially masquerading in rancid jars, discarded underwear and pine shoe-boxes as fresh country butter, a good purpose will have been served, as well as a burden lifted from many housewives, farm husbands, willing and unwilling middlemen, and a multitude of eaters not content to live by bread alone.

The many well-to-do communities of this and other lands where dairying is a leading industry indisputably prove that, wisely conducted, it has yielded higher prosperity than general farming. It not only gives better and more frequent returns in cash, but it enables the farmer to maintain and even to increase the fertility of his land. If it be conceded as a fact that dairying under proper conditions is remunerative, the next question is, Do such conditions prevail in Kansas? To this it may be safely answered, that in most essentials there is no State better adapted to the business. Our soils are productive; we can raise unlimited supply of feed at incomparably low cost; our winters are shorter and milder than in Wisconsin, Iowa, and Minnesota, where they have made such a conspicuous success in dairying; our cattle will require less expensive shelter, they can be at pasture longer, and the cost of labor must therefore be proportionately less. The corn, Kafir-corn and other sorghums, alfalfa, clover, and grasses we produce so abundantly, with brans from our wheat, are in large measure the ideal cheap raw materials for manufacturing on our farms, by means of the cow, commodities that afford a ready-money income every month.

In this connection, it is worthy of note that Kansas is falling behind her progressive sisters in the matter of maintaining a dairy school. Many other States have dairy departments attached to their agricultural colleges. Much of the activity of the dairy interests in these States can be directly traced to the influence of their facilities for further instruction in this line, and, appreciating this fact, some have expended large sums on the equipment of such schools. Thus, those of New York, Wisconsin, Iowa, and Minnesota were established for \$50,000, \$40,000, and \$25,000 respectively.

A properly equipped dairy department at our Agricultural College, adapted to our present requirements, would probably not cost to exceed \$10,000. This sum would be returned to the State a hundred, yes, a thousandfold in the course of a few years

through a resulting increased prosperity. The demand from the thoughtful for such a department is becoming more urgent each year, as the nature and possibilities of dairying in Kansas become more and more apparent. Our sons and daughters, who seek a dairy education are now compelled to go to Iowa, Minnesota, Wisconsin, New York, or to even far-off Vermont, in order to obtain the instruction they desire. If these States find it profitable to invest such sums in order to provide this instruction for their young men and women, it would certainly seem to the advantage of Kansas to expend a reasonable amount for a like purpose.

Surely in no other way can a general knowledge of the requisites for maintaining the proper conditions for successful dairying be disseminated and the necessary experts be so thoroughly and inexpensively trained, or the general standard of our dairy products early raised to the point where an extensive and permanent market is assured. In no other way can the latest improvements in dairy machinery, methods, and cattle be so clearly presented to the enterprising people of the State nor a certain and definite basis for experiments under our climatic and other special conditions be so well established. At all events, the Kansas standard of production is so low that there is unmistakably something lacking in our present dairy methods (or absence of methods), as may be discovered from the figures here given.

The following table shows the value of butter and cheese manufactured and milk sold yearly in Kansas in the 10 years beginning with 1887, as returned by assessors:—

Year.	Cheese.	Butter.	Milk.	Total value.
1887	\$59,592.48	\$4,323,403.84	\$477,381	\$4,860,377.32
1888	53,187.96	4,458,880.17	582,607	5,094,675.13
1889	55,988.30	3,840,324.72	555,614	4,451,927.02
1890	74,388.40	3,515,552.88	510,931	4,100,872.28
1891	67,474.92	4,362,725.55	528,761	4,958,961.47
1892	59,466.99	4,155,819.90	450,212	4,665,498.89
1893	40,255.71	4,375,618.08	430,865	4,846,738.79
1894	38,491.56	4,385,953.76	446,036	4,870,481.32
1895	76,596.35	4,050,048.60	383,987	4,510,631.95
1896	125,909.52	4,225,896.44	620,640	4,972,445.96

The table below shows the number of milch cows in Kansas in each of the years named, and the average value of their yearly individual dairy product, as deduced from the table above:

Year	No. of cows	Av. value of product per cow.
1887	692,858	\$7.01
1888	742,639	6.86
1889	723,552	6.15
1890	674,705	6.07
1891	691,611	7.18
1892	631,386	7.38
1893	567,353	8.54
1894	524,127	9.29
1895	517,254	8.72
1896	515,075	9.65

To all who have so generously assisted in giving value to this work, and especially those from other States, the Kansas Board of Agriculture and its Secretary are under lasting obligations.—*F. D. Coburn, Secretary, in Introduction to Quarterly Report State Board of Agriculture.*

Are We Living Up to Our Privileges?

Probably the majority of us would unthinkingly answer this question in the affirmative, if suddenly confronted with it, and yet, after a moment's reflection, would our reply be the same? Would not the conviction gradually force itself upon us, that we are not making the most of our opportunities for improvement which are open to and waiting for the person who appreciates them.

If it is safe to judge by appearances, some students seem to have the idea that attending college consists in staying away from classes whenever there is the slightest excuse for so doing, and sometimes when there is none at all, in going to everything that comes along in the social line, once in a while getting real studios for a day or two, and finally, when the time arrives for examinations, just escaping a flat failure in some studies and being invited to consult the President concerning others. If inquiry were made as to their future plans, probably everyone of them would be certain that "some day" he would take up a paying profession and make a grand success of it, and in his own words, "strike it rich."

Some day! What a multitude of possibilities are contained in this word, and how disappointing it will prove to him who has not learned that to-day is the "some day" of the past, and as it is, so will be that magical "some day" of the future upon which he bases so many fond hopes. To a great extent, the manner in which we complete the college course will decide our success in any occupation that we may choose in after life. Of course, circumstances may interfere somewhat with our plans, but they will prove only temporary obstacles, and he who makes the most of every opportunity need have little fear of the realization of his "some day."

A college education is within the reach of only a small per cent of the people of the State, and this very fact should make those who have such a chance appreciate it the more highly. Here we have the opportunities of a lifetime, and I do not believe there is a single graduate of this institution who can look back on the four years of study and say that if it were in his power he would change it in any respect. Now that it is over, he can view it impartially, and with a keener vision. Here is the place where something was left undone, and there perhaps valuable time was unconsciously wasted for some trifle, when it could have been profitably employed. Can we not learn a lesson from this, and leave but very few unpleasant spots to look back upon in after years?

There are many chances for self-culture aside from the regular routine of studies. Of what use is the

museum and various collections of interest which the College possesses? Did the men who brought them together so carefully do it simply for amusement, or was it with the hope that others might also be benefited by them? Is the library with its thousands of volumes only for ornamental purposes? Surely not; every one of us ought to make up his mind that so much is due him in his own right, and that if he does not obtain it, he can blame no one but himself. If you have a vacant hour, go into the library and read upon any subject which interests you. Make a practice of doing so each day, and you will be surprised at the amount of good it will do you. One should feel awed in the presence of so much knowledge, and be thankful that he has the opportunity of profiting by it.

It is possible for us to live up to our privileges, and if we fail to do so, no one can be held responsible for it but ourselves.—*R. S. Kellogg, '96, in Students' Herald.*

Wheat Under Irrigation.

The past crop season was, in the immediate vicinity of Enterprise, an excessively dry one, especially from the time that wheat went into the ground in the fall of 1895, all during the fall, winter, and spring, until the latter part of May, when rains set in. Hence the benefits of irrigation were clearly brought out in the results as stated below.

On September 15, I prepared land, previously in potatoes, and which had been thoroughly irrigated all during the summer, raising a large potato crop, for wheat, by plowing and harrowing. However, I did not sow the wheat until October 16, on account of the presence of a great many grasshoppers. The soil was then very mellow and the subsoil quite wet. The top was somewhat dry. The wheat came up promptly and early, and the light surface rains which we had, kept it green until the latter part of December. I sowed some imported wheat that had arrived late, on December 20, and still another batch about the middle of February. In the spring, my wheat began to grow rapidly and vigorously, and when, during the latter part of April and the first of May, a severe drought, with accompanying high winds and dust storms, destroyed a large portion of the crop in this county, my wheat had thoroughly covered the ground and was sufficiently vigorous to withstand the damage.

The final results were thirty-nine bushels per acre on a piece of Indian Valley wheat sown in October; thirty-five bushels per acre on a piece of Russian (Crimean Winter) wheat, sown in October; about ten bushels per acre on that sown in December, and practically nothing on that sown in February. It is worthy of remark that the failure of the wheat sown in February was directly due to its wonderfully rank growth, and the fact that during the hot weather and winds, the blossom of the wheat was destroyed. A piece sown in October at the same time mine was, on an adjoining section on the same kind of soil, but without irrigation, yielded but five bushels per acre of an inferior quality of wheat, as against thirty-five and thirty-nine bushels on my fields. Please note that there was no direct irrigation in my wheat, but that it was all done prior to the sowing of the wheat, by getting the subsoil thoroughly moistened through irrigation of the potato crop.

The conclusion is that land flooded before sowing in the fall will get enough moisture to make a good wheat crop; and as this kind of irrigation can be done at comparatively small cost, I am inclined to think that where location is favorable and water can be obtained readily, it would pay to irrigate for wheat.—*Hon. C. B. Hoffman, before Kansas Irrigation Congress.*

Labor and Earnings.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour's daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their ability and means.

All labor at the College is under the direction of the superintendents of the department, and offers opportunities for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with the services rendered, from 8 to 10 cents an hour. The superintendents strive to adjust their work to the necessities of students and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses.

The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

PLAN OF OUR STEER-FEEDING EXPERIMENT.

(Continued from page 42.)

horns and three grade Herefords, and run fairly even in size and quality.

The experiment is planned with a view to test the value of red and black-hulled white Kaffir corn as beef-producing feeding stuffs in comparison with corn. To this end, the steers are divided into three lots of five head each, and each lot fed on one of the above-named grains, ground to meal with Kaffir corn fodder of good quality for roughness. They will be fed in open yards, separated only by wire fencing, and in which each lot will have access to water and shelter of an open shed. They will not be subjected to any pampering, but in all respects handled as the ordinary feeder handles his stock in order to make the test thoroughly practical.

During the first three weeks the manure will be collected and the grain voided undigested washed out to ascertain what per cent of the feed is wasted. At the end of that time five shoats will be placed behind each lot of steers, and they will be given what extra feed they may require of the same kind the steers get.

If the steers make moderate and steady gains on these feeds, they will get nothing else; but if the gain of any lot should be unsatisfactory, the ration will be enriched with bran and possibly a small amount of oil meal, sufficient to improve the gain.

Kaffir corn is now an established crop in Kansas. The results of the last five or six years have not only proved that this foreign grain can be grown here with marked success, but that it is superior to corn both in drouth-resisting and in yielding qualities. The only unsettled point is in feeding value. Should it prove to be equal to corn also in this respect, or but slightly inferior to it, it is destined to grow still more in favor with our farmers, and in certain regions of the State surpass corn altogether. It is hoped that this experiment may go far toward settling the question.

Connecticut is the latest State to enact a "good-roads law." The act is a simple one. It provides for a commission of three members, to be appointed by the governor, whose duty it shall be to oversee the work of macadamizing roads, and assess the cost of the improvement in three equal parts: on the town, the county, and the State. The State's outlay is limited to \$75,000. The road improving is to be limited by the towns themselves; after the roads are selected, it is for the commissioners to see that the work is properly done, and the cost duly apportioned. But even this scheme is not viewed with entire approval throughout the State.—*Western Rural.*

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THE INDUSTRIALIST is sent to every newspaper in the State, so far as known, and receives in exchange a goodly number. These are carefully read for items of State interest, and as carefully filed in the library for the convenience of students, who inquire regularly for their county papers, and are disappointed often that they do not find them.

There is something of interest for our students and faculty in every newspaper in Kansas, and there should be something of like interest for the editors in the Kansas State Agricultural College, which offers a free education to the youth of the State.

Send your paper to the College.

ALLEGED WONDERFUL DISCOVERIES.

BY PROF. G. H. FAIRYER.

AN article appearing recently in a daily paper upon a so-called magnetic engine, and the way in which it may revolutionize mechanics, has called forth the remarks that follow. It may be premised that the article was doubtless written as a display of the lively imagination of the author, and to awe the general reader. The character of the magnetic engine described may be judged by the statement that "it will run continuously until worn out." The description is clear and complete except in one important particular. A mysterious compound, which is the principal discovery of the inventor of this wonderful engine, and which, when interposed, cuts off the power of the magnets employed, is mentioned, but nothing is said as to its composition or the manner of its working.

In this age of wonderful discoveries and of equally wonderful imaginations, it becomes a serious question what attitude of mind should be assumed toward startling claims or announcements. To deny the possibility of things as yet unknown and even differing from experience, is obviously unsafe, as the discoveries of recent years amply show. Equally at fault is he who too readily accepts as true accounts of discoveries and inventions because they are novel, extraordinary, or opposed to present beliefs and theories, or to known facts. There are, of course, certain well-established principles, and one will be perfectly safe and, moreover, justified in refusing to accept as true any discovery or invention that contradicts these. It is quite a different matter whether the discovery is merely an enlargement of our knowledge, however great this enlargement may be, or is absolutely opposed to well established facts: whether, in other words, it is really opposed to facts and principles already accepted, or only seems to be so opposed. In the former case, one should demand the most positive proof that the new things are true; that the discoverer, if thoroughly honest, is not self-deceived; and until such proof is forthcoming one is justified in questioning, to the extent of disbelief, the reality of the discovery. He who pronounces this class of inventions, discoveries, or phenomena impossible is not open to the charge of being bigoted. In the latter class, where the new thing is actually an extension of, or addition to, present knowledge, a much less positive position will be justified. In such cases it can be said that he who makes claims beyond past experience or knowledge must bring proof of the truth of his claims, and until this is produced we will neither affirm nor deny. While admitting the possibility of that which is not actually against experience but only outside of it, it is not necessary to admit that it is probably, much less really, true. And so long as the principal discovery or power is due to some mysterious, unheard-of thing that is still kept secret, we may well entertain suspicions of the truth and sincerity of the claim.

The general reader is not always able to distinguish between that which should be considered impossible and that which should be considered possible; and even specialists often err in their judgment in this respect.

When in doubt, it is always safe to be cautious in accepting statements, but be ready to receive and weigh proof. In fact, it is generally better to await proof before believing in any extraordinary statement or claim. As to what the proof must be, that must be left to each individual. It may be held that matters of science that can be traced only to the ordinary newspapers require other proof. The publishers of these papers do not assume responsibility for the truth of such items, and they publish the pa-

per to interest and amuse as well as to give the news. When reference can be made to some scientific or technical journal, or acknowledged authority, the evidence will have much greater weight. Even in this case, the claims are sometimes so extraordinary as to justify credulity until additional evidence in the way of further trials or experience has shown their truth.

BE OF GOOD CHEER.

BY JOSEPHINE HARPER.

YOUNG people, let us lay aside our book for a short time and consider together the theme, cheerfulness. It may be that we can learn something that will be of as much use to us in battling with the realities of life as we would learn from our text-book in the allotted time. We will make three subdivisions of our subject; namely, cheerfulness is the first thing, cheerfulness is the second, cheerfulness is the third; in other words, be cheerful first, last, and all the time.

A young person with a leaning to sadness and a tendency to look upon the dark side of life is out of harmony with youth, when life should be all joy and brightness. Such a person will always be receiving slights never intended, and some innocent persons who never dreamed of giving offense are astonished to find an unfortunate word mistaken for an insult. It is far better to take a charitable view of our fellow-beings, and not suppose that every little act that does not come up to our standard is a slight.

A cheerful spirit can be cultivated, and we can learn to command our feelings so as to be really cheerful in all ordinary matters of life. Just as a room full of sunshine has no dark corners, so a life full of love and happiness can have no bad tempers, selfish thoughts, or morbid broodings over imaginary injuries. Some one has asked, "Would it not be better to live in a fool's paradise than to walk through a real one with eyes that refuse to see the glorious sunshine or the flowers growing at our feet?"

The young member of the family who, out for an afternoon or evening, comes home with a pleasant word and smile for every one and tells those who did not go all that has taken place, even to the minutest detail, not leaving out the harmless jokes and nonsense, is the one missed the most, thought of most often, when out of the home fighting life's battle alone.

We can learn a lesson in cheerfulness from the feathered tribe. How they chatter and sing in the trees from early morn till late evening as though their little throats would burst with joyousness. It is stated somewhere that "constant cheerfulness is depressing." This is certainly a false statement; real, true good cheer, genuine happiness, cannot be depressing. The sentiment above quoted sounds a little like Thomas Carlyle, but a careful search fails to reveal it in his writings. Of all the disagreeable things he ever said this one of cheerfulness being depressing is not one of them.

Any good observer of human nature will be surprised in watching the throng on the street in a large town or city to see the over-sober faces and wrinkled brows of the passers by, both young and old. This severe soberness may be due in part to their being engaged in the pursuit of some business. But a cheerful face is a good thing to take with one any where—into the office, class room, store, or kitchen. Watch the people in the parks supposed to be on pleasure bent, enjoying the life-giving sunshine and fresh air. They often look as though they were out of tune with the whole plan of creation.

A beautiful face with a scowl upon the brow, the mouth drawn down at the corners and a discontented look on the face is like a fine landscape shrouded in a thunder cloud.

Let the good cheer in the heart show in the eyes and sound in the voice, gladdening all who come within its reach, ever remembering the words of the poet—
"Laugh and the world laughs with you;
Weep and you weep alone."

The advancement of social life in the country is greatly retarded by the married farmer, for the reason that, in the pursuit of his calling, he comes in contact with people so much more than do his wife and children, that he does not feel the need of other companionship as they do. He needs some very sharp raps to rouse him to a realization of the social needs of his family.

A Cheerful View of Farming.

There exists throughout the country a serious depression in financial matter and a great lack of demand for farm products, with extremely low prices, all of which are matters of serious concern to the farmers. We have no patience with those who are making the claim that farming is all right, and all that is needed is to get into line and practice the advanced methods advocated by scientific investigators and the press, for any sensible man who has given the subject any study knows that prices of most farm products are down so near the cost of production that there is little or no profit for the farmer, even when the best knowledge and skill obtainable is applied. It is a good thing to recognize the situation, for we are thus led to intelligent study of causes, and will be prepared for intelligent and progressive action. We have much to do in shaping the conditions by which we are surrounded, and it is our duty as citizens to see that they are neither being deceived by the false arguments and sophistry of the political agitator, who has little regard for the truth, or be led astray by professional organizers whose main incentive is a selfish motive for personal preferment and gain. The farmers should comprehend these matters, and realize the strong effort necessary for success.

It is business to see the obstacles, but it is not business to carry a magnified view of them around with us in our daily lives, destroying our cheerfulness, hiding very much that is pleasant, and tending to make others think that we are sorry we were given a chance to live on this earth. Farming right now compares very favorably with many other occupations, and thousands who would swap their business for some other would clamor to swap back if the exchange were made.

The reason for taking this cheerful view of matters and recognizing the advantages of farm life have been so frequently and earnestly advocated under various subjects and in such a great variety of ways that it is unnecessary to repeat them here. It is well to realize what it is worth for a man to be his own master, planning and executing his work according to his own ideas and with no regard to anyone's authority or direction; to be free from the necessity of becoming an animated machine for another man for a fixed number of hours every working day in the year and as much under his control during those hours as are the animals under the control of the farmer; to have a home surrounded by all the health-giving properties of pure air, water, and food and an absence of crowding that tends to develop the mind and strengthen the body; all these things, and a hundred others of similar importance, should be fresh in the mind of every tiller of the soil as an incentive to cheerful and happy existence.

The large farmer who has much capital invested in land, stock, and machinery of course has the same reason to feel anxious and worried as the business man or financier with an equal amount in other enterprises, but there are comparatively few farmers of this class, and we have in mind the very large number of small farmers who pay out little money for labor, and whose money is invested in the farms upon which they live and which represent their entire capital. Owners of such farms are sure of a living, and daily labor for the owner and his family can always be found. The pay may seem small when counted in currency, but when reckoned in abundant, good food, a healthy home, and constant enjoyment of one's family, with all the liberty of action and absence of worry which such life affords, it is more than any other class of people in the world are getting. It is only the capitalist whose entire resources are threatened, or the working man whose employer shuts down his factory, that can fully appreciate the blessing of an assured living, however humble, for those dependent upon him.

It is not much comfort to the person in trouble to know that others are in the same condition, and the fact that residents of towns and cities are having a harder struggle than formerly does not make the farmer's lot better, but it does lead him to take a sensible view of others, and affords ample reason for a moderate degree of comparative contentment and cheerfulness. When prosperity returns, it will come to the farmer as soon as to the city and village people, for the interests of town and country are interwoven in so many ways that both will be reached at the same time. We do not expect to pass through this life but once, and we want to get the best out of it while here. We shall fail unless we see the good things which surround us and that really outweigh the bad two to one. The farmer today is on as sure ground to extract comfort and happiness out of life as the average resident of the big city, and he should take a cheerful view of the situation.—*Mirror and Farmer.*

Art in Agriculture.

Art in agriculture is coming to be more and more noticeable every day. With the advent of new methods, improved implements, and a wider knowledge of the field, the agriculturist is rising higher and higher in the field of useful or ornamental art as the years go by. We may say that sharp competition is no small factor in this progressive movement, says the *Agricultural Student*. Take, for example, the manner in which certain products are prepared for the open market. The improvement in the condition of certain dairy products and fruit on the market in the past few years is truly wonderful. The reason, of course, is that people always buy that article which

is put up in the most tasty and attractive style, and are willing to pay a little more for it. With this change comes a more wholesome effect upon the article itself, and disease is much less disseminated through food at the present time than formerly. Greater precautions are taken now than ever before in preventing the spread of contagious diseases in this manner, and with the increase in the size of the cities and the greater liability to ill health, these precautions cannot be observed too carefully. Thus the agriculturist, to be successful, must keep right up to date in his reading and methods.

Shall He be a Farmer?

This is a question which many a young man is considering. It is of vital importance to himself and of a good deal of interest to the community in which he will have a home, that he reaches a wise decision. It is his duty, as well as for his comfort and his financial benefit, that he do something that will make him of use in the world. He has no right either to be an idler or to enter any line of work in which he will bear injury to those over whom he has an influence. This, however, is not a very close limitation. In this country of wonderfully diversified interests, a large number of occupations which are both useful and honorable are constantly open to all who wish to enter them.

Among the things to be considered in choosing an occupation is the probability of success. The man who is wise not only wants to work, but he wants to do something that will yield him a fair reward. Not that financial success is to be made the chief end and aim of life. Very far from it. But there should be a reasonable prospect that if the work is well done it will yield the worker a reasonable share of the comforts of life. This, we believe, is offered to the farmer. It is true that, as with pretty nearly every other kind of business, farming has its periods of depression as well as those which are especially favorable. But as it is an occupation that is an absolute necessity to the welfare, and even to the civilization of the world, there can be no doubt that if properly conducted it will, on the average, yield fair returns. In this connection it should be remembered that though money is a necessity there are other things, such as health and home comforts, which are of incalculable value and which help to make up the sum total of thereward which certain occupations offer to those who follow them. It is often asserted that while in many ways farming is an excellent occupation, its rewards are far from liberal, but it is probable that many of those who take this view overlook the fact that the farm gives many advantages, the value of which cannot be stated in commercial terms.

Because there are advantages connected with any given occupation which is open to him, it does not follow that each and every young man who is looking for a field of labor should choose it for his own. So far as success is concerned, as much depends upon the individual as upon the occupation. The "personal equation" cannot be eliminated. Men have certain tastes and capacities, which are born with them, which will have a great deal to do with their success or failure, and which ought also to have a great deal to do in determining the kind of work which they will attempt to perform. These qualities may be modified to some extent, they can be controlled in some measure, but it is a great help, both as regards happiness and success, to have them in harmony with the line of work which one is obliged to follow. The young man who has a genuine love for the farm will be much more likely to succeed as a farmer than will one who, though equally intelligent and industrious, is most deeply interested in other lines of work.

In itself farming is one of the best and noblest of callings. It offers a field for the exercise of the highest qualities of the human mind. It is useful and it may be so followed as to develop all that is noblest in the nature of man. It is to be regretted that so many of our brightest and best young people are seeking other occupations. Some of them, doubtless, are choosing aright. Their tastes and talents are of a nature which would make farm life irksome and farm work drudgery of the hardest type. But we believe that many who are going to our cities and large towns, especially those who are going from farms, would do much better to give their time and labor to the cultivation of the soil.—*Practical Farmer.*

Some Mistakes in Farming.

It is strange, but true, that our mistakes are less noticeable than our victories. We see our prosperity thrice where we see our failures once. We dismiss from our minds our failures and mistakes as soon as we can, but we like to dwell upon some great achievement or profitable undertaking. We can see the mistakes of others. It is easy enough to see them, but our own are quickly obscured. It has been wisely said that experience is a dear school but a good one. When we have learned some mode of performing certain work by experience, and it has proved profitable, we are apt to repeat the operation, but if it proves a failure we desire to forget it as soon as possible. It was somebody's mistake that caused the threatened destruction of all our cattle by hollow-horn, wolf-in-the-tail, or the loss of the cud, and yet there are people who feel that these are no mistakes, but facts based upon repeated mistaken ideas and views. It is quite possible for men to dwell upon certain mistaken ideas until they believe them true, but this does not prevent them from being mistakes. We know of men who have told certain things which they knew were not true, so many, many times that they believe them now themselves. It is so easy to fall in a rut and remain there. It requires no effort to remain, no thought, no labor, but to get out may

call forth a combination of all three. A boat will drift with the tide, but it requires an effort if one would row up stream. To gain the top of a ladder requires an effort. To profit by our own mistakes requires an extra effort. To keep well up in the procession in life requires a great effort. For years we persisted in robbing the soil, feeling that we were robbing some one else, when at last we found that we were just taking dollars out of our pocket to put into another. It was only a mistake that we could not then see. Old-fashioned dairy methods, keeping scrubs, buying more land than can be paid for, growing weeds, selling wheat and buying flour, selling hogs and buying pork and lard, doing two men's work, working in the rain, and many other things we may mention are some of our mistakes. It required years to discover them, perhaps, and as soon as they are discovered we forget them. But the first thoroughbred animal, the first clover seed we bought, the first creamery cooler, all have pleasant and everlasting memories in our minds. It is strange that a man will continue to do things that he knows are mistakes. It is done every day and has been done for years. If we would only record these mistakes in a book and refer to them often we would shun them afterwards when we saw them, as the sailor does the buoy which tells of the hidden rocks. It would be difficult to compute what our mistakes have cost us. We would be horrified at the exposure of our own mistakes with their cost carried out and footed up. Here is a mistake. Let us record it now. When we come this way next season let us look out for this mistake and go another way. "Prove all things; hold fast to that which is good."—*Live Stock Indicator.*

Farmers and Hard Times.

There are writers and speakers who tell us that these hard times have hurt those who live upon farms more than those engaged in other pursuits. The contrary is true. Thousands of men in business and financial circles have seen the entire savings of a life wrenched from their trembling hands. No day has dawned upon American farms when the family did not sit down to its accustomed meals, but there are thousands of men, heretofore prosperous in the world of business and finance, who do not know today from what source will come their meals for tomorrow. In the land of infinite crops no man starves upon a farm. Such suffering is confined to cities and manufacturing districts. The shipwrecks of business have left thousands of families stranded. Some of them are supported by relatives; some of them by daughters who work in offices; and many, alas! very many, would hand out their hearts in gratitude if they had the comforts and shelter of a humble farm. No class of men can escape suffering when the nation groans in pain. The Republic is like the individual. If one part of the body politic is wrong, all parts are wrong. We cannot prosper unless you do. You cannot prosper unless we do. One class of citizens cannot be benefited at the expense of another class. The dagger which destroys the stomach will kill just as quick as the dagger which destroys the heart. All of us must have a part in better times, or all of us must suffer together.—*Farmer's Friend.*

Let Us Stick to the Farm.

History proves that prosperity has always followed times of great depression, and history will repeat itself. No matter what comes, let us stick to the farm. We may work a few years for nothing, but what matters it so long as we retain in our possession the old farm home? We shall not always remain at the bottom of the wheel. In time, matters will adjust themselves. Then let us have a firmer determination than ever to know the details of our business and make the coming year conspicuous for having made progress in reducing the cost of production, the curtailment of unnecessary expenses, and, above all, let us never forget that ours is one of the noblest callings given to men, and the little spot of ground we occupy is part of God's green earth, and let us manfully and hopefully till and care for it, that they who shall succeed us may point with pride to the work of our hands.—*Correspondent New England Farmer.*

Seventy-First Birthday.

The *Youth's Companion* will celebrate its seventy-first birthday in 1897. Among the many attractive announcements of the *Companion* for the coming year is an article of exceptional value by Mr. Andrew Carnegie, on "The Habit of Thrift." Successful men in other walks of life will second Mr. Carnegie's paper with readable, practical articles based on their own experience, and valuable to the old as well as to the young.

Stories will be given by Ian Maclaren, Rudyard Kipling, Stephen Crane, Harold Frederic, and Clark Russell. Speaker Reed, Secretary Herbert, Senator Lodge, Hon. Carl Schurz, Postmaster General Wilson, Dr. Lyman Abbott, Hon. Theodore Roosevelt—these are a few of the two hundred names that figure in the latest list of *Companion* contributors.

The non-partisan Editorials and the Current Events and Nature and Science Departments are of especial interest to students and to all who wish to keep informed of the doings of the world. As a reference book a file of *Companions* is well-nigh invaluable, for its reputation is founded on seventy years of tested accuracy.

New subscribers sending \$1.75 to the *Companion* for 1897 will receive the *Companion* for the remainder of the year free, also the *Companion's* artistic twelve-color Calendar, and the paper a full year to January, 1898. Illustrated Prospectus of the next volume will be sent free on request. Address,

THE YOUTH'S COMPANION,
205 Columbus Ave., Boston, Mass.

Calendar.

1896-97.
Fall Term—September 10th to December 19th.
Winter Term—January 5th to March 27th.
Spring Term—March 30th to June 10th.
June 10th, Commencement.
1897-98.
Fall Term—September 9th to December 18th

To School Officers.

The College Loan Commissioner has funds now to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioner and the State Agricultural College. Address C. R. Noe, Loan Commissioner, Leon, Kan.

GENERAL LOCAL NOTES.

The students' pay-roll for October amounts to \$1,283.29.

Mrs. Kedzie is to talk of Scotland at the Congregational church this evening.

The Young Men's Christian Association observed the week of prayer last week.

Prof. Nichols enjoys a visit from his parents, Mr. and Mrs. A. F. Nichols, of Portland, Oregon.

Grace Stokes, Third-year, is the author of a poem, "When the Light's Turned Out," published in the *Topeka Capital*.

Capt. Cavanaugh states that he has not asked to be relieved from duty at this College, as has been stated in at least three newspapers recently.

The union meeting of the Young Men's Christian Association and the Young Women's Christian Association, to have been held yesterday, is postponed for one week.

Dr. Mayo's little son Donald fell the other day and broke both bones of the right forearm. The fracture is knitting nicely, and the little sufferer will soon again be well.

Prof. Popenoe presents a paper entitled, "Hardy Garden Flowers," before the thirteenth annual meeting of the State Horticultural Society, which will be held in the State Capitol on December 9th, 10th, and 11th.

Mrs. N. R. Colver, of Hagerstown, Md., visited College Saturday in company of Miss Anna Hall, of Manhattan. She took a lively interest in the College, and was pleased with the opportunity to inspect the leading institution of its kind in the world.

A. L. Eidson and Lizzie Cherry, both First-year students, were married, November 1st, at the home of the bride, Holton, Kansas. The young folks went on their wedding journey to West Plains, Meade County, the home of the groom, who cast his first vote for president on election day.

The Manhattan Horticultural Society is to meet at the College on Thursday, November 19th. Prof. Failyer will read a paper entitled "Soil Moisture," Prof. Georgeson will talk of "The Ozark Region as a Fruit Country," and Mrs. Sam Kimble on "The Importance of Detail." All are invited.

Geo. Doll, Third-year in 1893-4, re-entered classes last week. He was one of the election board at his home in Pawnee County, and this morning received from the County Clerk a certificate of his election as Road Overseer. He was not a candidate, and but one vote was cast for him—and that in a spirit of pleasantry by a member of the election board.

President Fairchild writes from Washington that he expects to reach home Wednesday evening after a day in Topeka with the State Board of Education, and adds: "Professors Georgeson and Mason have done themselves credit in their several sections. Prof. Georgeson presided as Chairman of the Section of Agriculture and Chemistry."

The College will be represented at the annual meeting of the State Dairy Association to be held at Abilene on November 18th, 19th, and 20th, by Prof. Georgeson and Secretary Graham. Prof. Georgeson presents a paper on "The Work of our State Agricultural College." Secy. Graham is one of the founders of the Association, and was for many years one of its executive officers.

Professor E. M. Shelton writes to Prof. Walters under date of October 5th, from Brisbane, Queensland: "We are all now very busy with the work of the College, and things are going on very well indeed. The buildings are rapidly approaching completion, and a great stretch of nearly 300 acres of beautiful bottom land has been cleared, grubbed, and fenced. Around this body of land the Lockyer river winds, forming a capital place for all sorts of experiments in irrigation, general farming, or as a place to deal with experiments pure and simple. We expect to move to the College Farm in the course of a couple of months, if all goes well, but remember that letters sent to Brisbane will always reach me just as usual. I get the *INDUSTRIALIST* regularly."

A number of the ladies of the College met at Mrs. Hood's residence on Friday afternoon, and, paradoxical as it may seem, organized without any organization; or, in other words, the ladies by consent resolved themselves into what, for want of a better name, they call a Ladies' Faculty Club. The object of this club is the entertainment of its members and the promotion of sociability between them. As one of the ladies laughingly said, "We know we are a nice lot of people, and only need to meet together to assure one another of the fact." The club is to meet once in two weeks on Friday afternoon, at the home of a member, and at each meeting two members are to be chosen by lot to plan the next entertainment. The meetings may be held at the College in the reception

room if for any reason the home of a member is not available. Once in four weeks the club will hold an evening session, to which the gentlemen will be invited.

Prof. Failyer lectured in Chapel Saturday afternoon, taking for his subject the comprehensive term "Caverns." The causes leading to the creation of caverns, as understood by the scientists of today, were given, and many peculiarities of caves in general pointed out and explained, the stereopticon aiding in an explanation of mysterious chambers in the caves of the Boston Mountains in Arkansas, visited and photographed by Prof. Failyer several years ago. Dr. Orr kindly consented to use his lantern, the College stereopticon being out of repair.

The following Associated Press dispatch from Washington is of special interest: "The Association of American Agricultural Colleges and Experiment Stations at its session today elected the following officers: President, Geo. T. Fairchild, President Kansas Agricultural College; Secretary and Treasurer, John H. Washburn, President Rhode Island College. The Association adopted a report of a committee which prescribes requirements for admission to college, and uniformity in the course of study for those seeking the degree of bachelor of science. A reception was tendered to Senator Morrill of Vermont, the father of land-grant colleges, and to Commissioner Harris of the Bureau of Education. The Association attended a meeting of the National Grange, and at one o'clock called on the President."

GRADUATES AND FORMER STUDENTS.

Edith Lantz, '96, enjoys a new bicycle which she kindly allows her younger sister to exercise at times.

G. K. Thompson, '92, is making a good paper of the *Blue Rapids Motor*, of which he is editor.

Phoebe McCormick, Second-year in 1890-91, is assistant teacher in the Manhattan Kindergarten school.

Isaac Jones, '94, leaves tomorrow for his home in Ada, where he will remain until the first of the year, at least.

Mary Lyman, '94, teaches the class in calisthenics, fifty-two in number, in two divisions—before chapel and at the "fifth hour."

Harry Ashbrook, student in 1890-1, has returned from the northwest range, where he spent the summer in the cattle business.

Isabella Frisbie, '94, Professor of Domestic Economy in South Dakota Agricultural College at Brookings, is at home to spend the vacation. The next college year opens in February.

E. H. Webster, '96, employed by the Aerometer Company at Chicago, visited his home in Yates Center to vote. He spent a day in the Fancy Creek neighborhood enroute.

E. C. Thayer, '91, for two years past Principal of the Indian School at Pawnee, Ok., has been transferred to Haskell Institute at Lawrence and given an increase of \$200 in salary.

Mrs. Dora Thompson-Winter, '95, with her daughter visited for several days in Manhattan last week. She spent several hours at College Friday morning, with the Faculty and the post-graduates.

J. B. S. Norton, '96, read a paper at a recent meeting of the St. Louis Academy of Science, presenting the results of a study of the Kansas *Ustilaginæ*, especially with reference to their germination.

The Joint Entertainment.

It seems that the Societies of the College were in league with the weather king, since the night set apart for the joint session was a typical November evening. At 7:30 scarcely a vacant seat was to be found in the Chapel, all present eagerly awaiting the opening of the program.

The Ionian President, Miss Winifred Houghton, was presiding officer of the evening. The program was opened by the selection, "Under the Mistletoe," rendered by the College Orchestra. The invocation was given by the President of the Hamilton Society, Mr. W. L. Hall.

In the Salutatory, the President of the Webster Society, Mr. W. B. Chase, gave all a hearty welcome. "The Webster Society has each year given a special entertainment to which their friends were invited, but this year the present entertainment takes its place. We will endeavor tonight to present to you in so far as we can the work of our Societies. It is impossible to represent all parts of our work, especially the parliamentary drill, in which every active member takes a part. We hope tonight that we may both amuse and instruct you."

The chorus, "Our Four Societies," was a pleasing feature of the program, and well were the Societies represented. The words were written by Miss Tacy Stokes, Third-year, and were sung to the air, "In the Shadow of the Pines."

We meet together here tonight, our four societies,
And we want to make the dear old Chapel ring
Till its vine-clad walls will echo back the sound to us again,
And returning, us in closer union bring.
It does seem strange, perhaps, for us to meet as we do here,
For we're rivals, yes, the fact we don't deny;
But our aim is one, to reach the top, passing by each stone,
Like the ivy that is climbing to the sky.

Chorus.—We're Hamp, Web, A. B., Ionians,
We're known as the big four;
Each has signed the roll-book,
We're members evermore.
When called by life's duties,

To leave old K. A. C.,
We'll e'er be faithful
To our Society.

When some of us have acted in a cold, unfriendly way,
And a cruel word has caused a sting of pain,
We have met as usual in our halls and worked together there,
And somehow we felt that we were friends again;
It seemed the clouds were lifted, which o'er shadowed life's
bright sun,
And we soon forgot the quarrels of days gone by;
And we tried to help each other gain a higher place in life,
As the old walls help the ivy to the sky.

We don't intend to give up hope if sessions seem to lag,
Or to say hard things of each Society,
But we'll all help bear the burden when a trouble threatens one
And united, make the four what they should be.
We don't know all about the rules of parliamentary laws,
But we know we'll learn if we will only try;
For its only by the bright hope that it will some day succeed
That keeps the ivy reaching toward the sky.

The debate on the question, "Resolved, That the use of machinery, under individual ownership, makes for the welfare of the laboring classes," was a credit to the societies represented by the four speakers.

Mr. A. D. Whipple, the first speaker on the affirmative, argued that, "Although, in the last one hundred years, human labor has been rapidly displaced by machine labor, some argue that the change has not been conducive to the welfare of certain classes of society. Society as a whole has, under its influence, advanced from its primitive condition to the brilliant civilization of today. Those who say it has not benefited the laboring class have not gone deep enough to ascertain the true cause why the wage earner's position is not what it should be. The principal objection raised to the use of machinery is that it diminishes the demand for laborers. But if the introduction of some certain kinds of machinery does diminish the quantity of labor in some particular line, it will in all probability increase it in some other industry. A great advantage that machinery offers is the relief from exhausting toil. The use of machinery lessens the cost of production and increases the quantity produced, thus lowering the price to the consumer. In the reduction of the length of the working day, the wage-earner receives another increase in real wages. Let us on with a cause that has done so much for the wage-earner. Let us urge our Edisons to greater effort and call into being greater Watts."

Miss Jennette Carpenter, in speaking on the negative, admitted that "The last century has in many ways been a century of progress, but it has also been one which has witnessed much suffering as the result of labor-saving machinery. It is evident that the laboring classes are dependent upon manual labor for their support, consequently anything which tends to dispense with human labor is an injury to the laborer. Authorities agree that symmetrical development is the highest type of life, and that those who have had one faculty developed at the expense of the others have left no impress on the affairs of the world. Formerly a youth was required to thoroughly learn the details of his chosen trade. But now with machinery he learns but one branch of a trade. The introduction of machinery has opened the doors of the factories to women and children. The effect upon society, of their enjoyment, can hardly be estimated. It is evident that something must be done to remove the cause that is making the condition of the laboring classes deplorable."

The attention of the audience was diverted by an instrumental duet, "Sparkling Dew," which was rendered very creditably by Miss Gertrude Rhodes and Mr. R. J. Peck.

The affirmative side of the debate was again taken up by Miss Lucy Cottrell. "First, the introduction of machinery has had an educational effect. The printing press has placed literature within the reach of even the poorest. The use of machinery tends to call out the intelligence of the laborer. Compare the intelligence required to use the hoe with that necessary to operate the steam engine. Another great benefit received from machinery is the broadened field of woman's labor. She has, through her place in the industries, found herself capable of doing other things. The self-supporting woman of today stands as fair a chance as the self-supporting man. Now as to the unemployed, they consist everywhere of two classes, the worthy and the unworthy. There is on every street corner idle young men evidently waiting for something to turn up. If they be offered work, they turn from it in disgust and devote their time more vigorously, if possible, to waiting. We admit that there is another class who are ready and willing to work, but cannot find employment. Machinery can be made either a curse or an unqualified blessing to the laboring classes."

Mr. J. H. Bower closed the debate by a negative argument. "Let us imagine for a moment, the condition of things if all work were done by labor-saving machinery under individual ownership. Laborers would be superfluous and would be thrown upon the world with no way to earn a living. The phrase, labor-saving machinery, explains itself. If it is not labor-saving machinery, why is it employed? But it does save labor, and hence supplants laborers. The Bureau of Labor shows the following facts: In the manufacture of agricultural implements, machinery has, in the last twenty years, displaced five per cent of the muscular labor. In 1885, one man, in spinning cotton, did the work of seven hundred men in 1769. We find a large displacement in any industry where labor-saving machinery is used. Now, what is going to become of this vast number of unemployed men? If machinery does not supplant labor, why are those vast armies unemployed? Machinery allows the employment of persons of slight muscular power, and hence the labor of women and children is sought after. Thus it takes the whole family to make the living that was formerly made by the father. Formerly, the workman sold his labor power; now he sells his wife and children."

Miss Emelie Pfuetze's vocal solo, "Sunny Spain," gave the audience some idea of the excellent music

that is furnished in the Ionian Hall every Saturday afternoon.

The paper, "Society Union," edited by Mr. O. E. Noble, Miss Harriet Vandivert, Miss Grace Dille, and Mr. Mark Wheeler, was read by Mr. Noble. The motto, "Always be adding stepping stones to the lines of progress your ancestors have laid," was well carried out in the productions that followed. The editorial entitled "Progress" set forth the growth that has been made in the friendly relations. It was treated from a religious, national, and social standpoint. It was appropriately closed by a quotation from Longfellow's "Psalm of Life"—

"Tell me not, in mournful numbers,
"Life is but an empty dream!"
And the soul is dead that slumbers,
And things are not what they seem."

The contributions were of a varied character. The titles only will be mentioned: "Bits of Poetry," "A Sketch," "Conclusive Evidence," and "A Parody on the 'Old Oaken Bucket.'" The students and Professors did not escape the jokes which are always characteristic of a society paper.

"The Mistletoe Bough" was a vocal solo rendered by Miss Mary Lyman, the suggestive scenes of which were afterward presented in a series of pantomimes. The scenes from the marriage ceremony to the finding of the skeleton were well represented and highly entertaining.

The quartette, "When My Ship Comes Over the Sea," by Misses Jeannette Perry and Marion Gilkerson, and Messrs. E. B. Patten and H. C. Avery, was followed by the Farewell Address given by Mr. C. W. Shull, the President of the Alpha Beta Society. In a few well-chosen words he thanked the audience for their attention, and hoped they felt repaid for the interest they had taken; and further, that those who are not members of society might see what this work means to every student.

EMMA S. FINLEY.

COLLEGE ORGANIZATIONS.

Student Editors.—W. B. Chase, Emma Finley, E. Shellenbaum

Y. M. C. A.—President, S. J. Adams, '98; Vice-President, G. D. Hulett, '98; Recording Secretary, O. S. True, '98; Corresponding Secretary, J. M. Pierce, '98; Treasurer, R. B. Mitchell, '99.

Y. W. C. A.—President, Emma Finley; Vice-President, Maggie Correll; Recording Secretary, Ethel Wolfley; Corresponding Secretary, Mary Waugh; Treasurer, Lucy Cottrell.

Webster Society.—President, W. B. Chase; Vice-President, J. B. Norton; Recording Secretary, S. Nichols; Corresponding Secretary, F. Zimmerman; Treasurer, C. Masters; Critic, R. J. Peck; Marshal, C. D. Lechner; Board of Directors, R. W. Bishoff, S. B. Newell, R. B. Mitchell, C. C. Jackson, P. K. Symms.

Ionian Society.—President, Winifred Houghton; Vice-President, Emma Finley; Recording Secretary, Jessie Bayless; Corresponding Secretary, Bonnie Adams; Treasurer, Dora Shartell; Critic, Myrtle Hood; Marshal, Clara Long; Board of Directors, Harriet Vandivert, Minnie Copeland, Olive Long.

Alpha Beta Society.—President, C. W. Shull; Vice-President, Grace Dille; Recording Secretary, G. D. Hulett; Corresponding Secretary, Elsie Waters; Treasurer, Kate Zimmerman; Critic, Alice Shofe; Marshal, Anna Streeter; Board of Directors, J. M. Westgate, Marion Gilkerson, G. D. Hulett, Sophronia Channell, May Pierce, T. J. Rumold, Florence Harling.

Hamilton Society.—President, W. L. Hall; Vice President, C. B. Ingman; Recording Secretary, A. D. Whipple; Corresponding Secretary, Guy F. Farley; Treasurer, B. F. Durant; Critic, H. M. Thomas; Marshal, T. E. Thomas; Board of Directors, O. E. Noble, Chairman, H. McCaslin, Secretary, G. G. Menke, Wm. Poole, Wm. Anderson.

November 7th.

Owing to the postponement of the joint session, the Ionians met at their usual hour, instead of in the Chapel, as intended. For the same reason, the program was short and was composed mostly of extemporaneous speaking. The speakers did remarkably well, and they received probably more benefit than if they had taken time to prepare their productions. Miss Ellen Norton led in devotion after singing. From this on all orders, except roll-call, were omitted. The first number on the program was a declamation by Miss Myrtle Cole. Miss Gertrude Lyman sang a solo. The extemporaneous speeches were made by Misses Long, Stokes, Johnson, Perry, Vandivert, Carnell, Hood, Doll, Pfuetze, and Bayless. These speeches were interspersed with music, so they did not become at all tiresome. The musical part of the program consisted of vocal solos by Miss Gertrude Lyman, Miss Rena Helder, and Miss Perry, also a piano duet by Misses Stokes and Rhodes. Miss Pritner read a very pretty original story. The names of Misses Trumble and Swingle were proposed for membership.

B. F. A.

November 7th.

At the usual hour Pres. Shull called the Alpha Betas to order. The program was opened with music by Misses Mather and Walters, guitar and zither, which was much enjoyed by all, as shown by the hearty applause. J. L. Perry then led in devotion, after which Messrs. Cottrell and Christensen were received as members. May Pierce gave a well chosen declamation. Alice Wolfley in an oration presented some good thoughts on reformations. The Society was next entertained by a trio of whistlers, Misses Harriet Thackrey, Lucy Cottrell, and Alice Shofe, Miss Shofe accompanying on the guitar. The debate was on the question, "Resolved, that we are indebted more to our form of government than to resources for our national prosperity." The affirmative was argued by Karl Hofer and Miss Monroe, and the negative by J. L. Perry and Miss Needham. By vote of the Society, the question was decided in favor of the affirmative. Marion Gilkerson rendered, in her usual pleasing manner, a piano solo. The "Gleaner," read by its editor, Elsie Waters, had for its motto "Be what you dream, and the earth shall see a greatness that she ne'er hath seen." Mr. C. C. Smith, who is still a loyal Alpha Beta, being present, was called upon to speak, and responded with cheering words which all appreciated. It is an inspiration to have our ex-members with us at any time. After recess, R. W. Clothier opened the program with a violin solo, accompanied by Marion Gilkerson on the piano.

They responded to a hearty encore. Questions had been distributed to members during recess, and the President called upon each member to talk upon his question. Interesting discussion on the various subjects followed. Roll-call showed a good attendance of members at the latter part of the session. The order of business was taken up, and various questions and reports discussed until adjournment.

November 7th.

President Hall called the Hamiltons to order at 7:30. Nearly every member answered "here" when the roll was called. M. W. Sanderson led the Society in prayer. After the reading of the minutes, J. L. Pancake, Z. L. Bliss, H. A. Washburn, H. Bainer, and C. C. Lowell were received as members. F. H. Yeager opened the program with a declamation. L. G. Hepworth was called to the chair, and the debate was taken up. The question, "Resolved, that the United States should adopt the initiative and referendum system," was argued affirmatively by W. L. Hall and A. J. Leonard; negatively by C. B. Ingman and M. W. Sanderson. The discussion was thorough, exhaustive, with good illustrations to substantiate both sides. The Society decided in favor of the affirmative. O. R. Smith, in his oration, gave some thoughts on religion. He brought up the principles and laws of religion and its place as an upbuilder and upholder of morals. H. W. Rogler read the news of the week. B. H. Schultze, in his declamation on "Patriotism," took up some of the occurrences of everyday life and showed their emphatic tendencies. W. R. Correll read the Recorder. The paper was, as usual, spicy, interesting, and entertaining. The Hamilton band was introduced, and favored the Society with a few choice selections of music. C. Mansfield finished the program with a declamation, "The Two Roads." Under propositions for membership, a half dozen more names were added to the list of prospective members. Owing to the unusual amount of business, the Society had to finish the session by the flickering light of the candle. G. F. F.

November 7th.

Owing to the postponement of the joint entertainment, the Websters were left without a regular program, and about fifty of the most ardent members met and produced a program on the spur of the moment. After prayer by J. B. Norton, we were entertained by R. J. Peck's piano solo. The encore, "Ta, Ra, Ra, Boom-de-a," made us feel light-footed. J. M. Pierce happened to have a declamation about him, and handed it out to the Society in an artistic manner. The next number was Mark Wheeler's quiz on Robert's Rules of Order. He "umpired" it to the satisfaction of all. H. P. Nelson sang a Danish song with an encore. The Society did not exactly understand the words; it was Dane to them. We decided that a Swiss song would go well with this, and H. M. Horn responded with two songs, new to most of us, and we enjoyed them. The extemporaneous orator of all the College, S. Dolby, gave us a speech on Bill Nye's wit and humor; the applause was more than the "gentle patter of his (Nye's) mother's slipper on his pantaloons." Mr. Dolby was asked to give three cheers for the flag on the wall, and he responded with a patriotic speech and cheers so well, that we could not help but cheer him. Carl Wheeler gave us a choice declamation. W. J. Rhoades, when called, sauntered up to the piano and "wiggled the ivories" for the sweetest tune we have heard this season. W. H. Young played the dutchman and gave a declamation on "My Mother-in-law." Sam McDowell, '95, H. N. Rhodes, '96, and Isaac Jones, '94, gave us talks. The latter was a Hamilton. We appreciated the remarks of these old warriors. We could not transact business, so adjourned at 10:15.

F. Z.

The Y. W. C. A. met Saturday as usual at the end of the fifth hour, with Miss Josie Finley as leader. This was the day for our monthly missionary meeting which is always looked forward to with great expectation. The meeting was opened by singing "Throw out the Life Line," Miss Emma Finley led in devotion. After an interesting talk by the leader, the meeting was opened to the members. Such an interest was taken by all that we found the time which is given us entirely too short. The meeting closed leaving all the members feeling a greater interest in the missionary cause.

E. F.

First- and Second-years, 10; Third- and Fourth-years, 0.

Elevens in the above-named combinations met on the gridiron this afternoon in the presence of a goodly number of spectators. The game was not an interesting one from the standpoint of a looker-on, the First- and Second-years having a decided advantage in weight, making steady gains by persistently hitting the center. The Third- and Fourth-years had the ball several times, but failed in the effort to send one of their speedy men away with it; and near the close of the last half made a desperate struggle to score by Cheadle's field kicks, but speedily lost the slight gain made, and when time was called the ball was on their twenty-five yard line.

The players retained their good nature throughout the contest, and the upper classmen accepted their defeat gracefully.

The teams lined up as follows:—

Third- and Fourth-years.	Position.	First- and Second-years.
Newell	Center	Pratt
Hepworth, Akin	Right Guard	Dodds
Nichols	Left Guard	De Armond
Smith, A. C.	Right Tackle	Foster
Patten	Left Tackle	Hartman, Grubb
Fox	Right End	Dial, B. W.
Noble	Left End	Clark
Dial, F. V.	Right Half	King
Menke	Left Half	Posten
Hoffman, E.	Quarter	Tulloss, J. O.
Cheadle	Full Back	Tulloss, W. J.

KANSAS EDUCATIONAL NOTES.

BY PROF. J. D. WALTERS.

The Kansas State Academy of Science will hold its annual meeting at Topeka, December 31st and January 1st and 2nd.

The thirty-fourth annual meeting of the Kansas State Teachers' Association will be held at Topeka, December 29th, 30th, and 31st.

State Superintendent-elect Stryker will go to New York soon to visit his wife and take a rest before entering upon the duties of his office.

Governor-elect Leedy will remove his family to Lawrence to educate his children in the State University and have them near him at Topeka.

On Friday, October 16th, President Taylor of the State Normal passed his fiftieth mile-post of life. The Senior Class presented him with the works of Eugene Field.

On October 26th the State Normal School was in serious danger from the spontaneous combustion of two carloads of coal in its rear annex. Just eighteen years ago the old building was burned from this same cause.

Supt. John Deitrich of the Emporia city schools has been elected to the superintendency of the schools of Colorado Springs. Mr. L. A. Lawther of Cottonwood Falls has been elected to fill the vacated chair at Emporia.

The Wichita Beacon says: "There is one thing that a united Wichita will ask the State Legislature this winter. All will unite in one mighty effort to secure a branch of the State Normal School, and offer for this purpose the Garfield University building—the finest college building in the West." As the State needs additional facilities for the training of teachers, there is a probability that Wichita will succeed. The Garfield building has cost about \$125,000, but it would require a large sum to put it in good shape for this purpose.

The State Normal Monthly says: "The football section, joined by a large number of the boys and girls, petitioned the Faculty last month for permission to play a couple of games with non-resident teams. As the rules of the Regents permit games with resident teams only, the petition was referred to the individual members of the Board through its Secretary. A majority of them preferred to take no action on such an important matter except at a regular meeting, and it will come before them in December, when the pros and cons can be fully discussed."

Prof. Dyche of the State University has returned from Alaska, bringing with him a carload of valuable Natural History specimens. In an article published in a Lawrence paper, he says: "The result of the trip was that I got seventeen whole skins of White Rocky Mountain sheep, six young sea otters, for which I traded with the Indians, 250 birds, a large number of small mammals, a group of five fur seals which I also secured by trade, two grizzly bears, besides a large number of other specimens. I also took 250 photographs which are now being developed, got a number of Indian relics, including sea otter spears, totem poles, and the like."

MANHATTAN ADVERTISEMENTS.

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SCHULTZ BROS. offer Fresh and Salt Meats in great variety. Students are invited to call at their market on Poynt Ave. one door east of Fox's bookstore, or give orders to delivery wagon.

THE INDUSTRIALIST.

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THE INDUSTRIALIST is sent to every newspaper in the State, so far as known, and receives in exchange a goodly number. These are carefully read for items of State interest, and as carefully filed in the library for the convenience of students, who inquire regularly for their county papers, and are disappointed often that they do not find them.

There is something of interest for our students and faculty in every newspaper in Kansas, and there should be something of like interest for the editors in the Kansas State Agricultural College, which offers a free education to the youth of the State.

Send your paper to the College.

LABORATORY WORK IN PHYSICS.

BY PROF. E. R. NICHOLS.

THE following extracts are from an article by Prof. Dolbear in the *Educational Review* for November. These are given to show the value of the study of physics and the necessity for laboratories to properly carry on the work. This College is from ten to fifteen years behind the times in attempting to teach physics without laboratory practice. All the First-year students have elementary physics one term, and the Fourth-years one and one-half terms. Thus nearly four hundred students are each year trying to learn this fundamental and practical science with little aid outside of the text-book. Seeing may be believing, but doing is knowing. Give the student a chance to observe, to appreciate, and above all, to think, to reason:—

"It is said that Helmholtz was at the outset a physician, and became a physiologist in order to better employ his art, but physiological questions inevitably ran into physical questions, and he became a physicist in order to understand physiology, and a mathematician in order to apply it to physics. If that order of subjects was true for Helmholtz, it is equally true for everybody, and the explanation of all sorts of phenomena, organic as well as inorganic, is to be found in physics, and that fact is in itself a sufficient reason for the study of physics by everybody. Without it there is no science whatever, for psychology itself has lately adopted physical methods, apparatus, and procedures, although it is called physiological psychology. If every physiological question is ultimately a physical question, as is believed to be true, then the new psychology should be called physical psychology, and every tentative hypothesis developed in its working should be made to be in accord with the principles of physics. In this sense, physics is not simply a branch of knowledge. It is the main trunk of all knowledge, from which all other sciences are but branches. When this idea is once grasped in its fullness,—as it will be, but not until there have been many funerals,—the amplest facilities will be made for its study and the greatest ingenuity will be expended to make its acquisition easy and attractive.

"The end and aim of the physical investigations today are to discover the kind of a universe we are in, the make-up of ourselves and our relations to the universe, in order that we may make the most of life because we can adapt ourselves to the nature of things that condition it. It ought not to be forgotten that the advance in knowledge alluded to, that which has necessitated the introduction of science into education, is the very last accomplishment. The colleges and universities provided for almost everything else before they provided a home for physics; namely, a physical laboratory, and the very last and highest accomplishment in physical science is its quantitative work.

"Mankind has existed on the earth for no one knows how many thousands of years with no knowledge at all of what we call physics, much less of it in any quantitative way, and there has been no felt want for any such thing. The colleges of New England have been provided with these only within fifteen years. At first it was supposed that scientific knowledge could be obtained from text-books, but it was soon found by experience that the student rarely got any intelligent idea of the subject matter, and that only here and there one was found who could think or had any interest at all in science. The reason appeared to be, they had been able to form no conception of the subject-matter from the book treatment, which had been almost always prepared by one who paid more attention to his subject than he had to the minds he was

to reach. If one talks to another in an unknown tongue, he may be never so wise or so witty, so earnest or so truthful, he will accomplish nothing for them. Another reason was, the six or ten pages for the day must be read over to be recited, whether understood or not, at the risk of degradation in rank; so a double disaster was the result of attempting to teach science in that way.

"How has it been in those schools where physics has been taught by the laboratory method? Here the theory has been that the student comes at once face to face with nature, and by manipulations, with proper oversight, he becomes acquainted with phenomena and their laws. Moreover, he is practiced in the arts of observation, of painstaking, of accuracy, of description.

Perhaps I am long in getting to my subject, but the bearing of all this may be apparent presently. The study of physics is the study of phenomena, and the object of it is to make the student acquainted with the conditions of existence, with himself as an organism related to the whole. He has thrust upon him all the time and in great variety phenomena of all sorts, and so has mankind from Adam and the year one, but they have never been rightly interpreted. Neither can they be, except by analyzing them and discovering their factors. The physical laboratory is the place where this can be done in an efficient manner, if the experiments be properly chosen and the work carried out in such a way as to make clear the relations of phenomena.

"Another thing a physical laboratory can do for a youngster: If he begins soon enough and has not had all his scientific instincts killed out by drill in technique, in language, mathematics, and other things in which he has no interest, it can help him greatly to think, because it has to do or may have to do with matters which he is more or less curious about. Heat, light, electricity, sound, everything that in any way reaches his senses, he can study then, but his senses are in no way concerned about any but qualitative relations, and work should be begun always on this side and not from the quantitative. As I said before, the quantitative stage is the latest, highest, and most refined product of science, and it has very little relation to any except very mature minds."

A NEW ECONOMIC ENTOMOLOGY.

BY PROF. E. A. POPENOE.

THOSE who have been looking for a hand-book in entomology, written as far as possible in untechnical language, conveying enough of the science to enable the novice to understand the ground work of classification, and to assist in the recognition of common forms, as well as suggesting the best modes of treatment with species of economic importance, will welcome a work entitled, "Economic Entomology," written by Professor John B. Smith of Rutgers College, New Jersey, and published by Lippincott. The work appears as a handy, cloth-bound duodecimo of 422 pages, illustrated by 483 figures and full-page plates, among them many familiar but none the less worthy cuts. Some of the process engravings prepared specially for the work are much less satisfactory, particularly the half-tones from photographs of the insect itself. These are few, however, and most of the illustrations will be found to be among the best of the kind now in vogue.

The text is divided into three parts, the first, covering fifty pages, devoted to structure and reproduction; the second, of about 360 pages, devoted to classification and the description of characteristic forms and their work; the third and concluding part, devoted to the practical questions of "insecticides, preventives, and machinery."

While the greater part of the book is given to the consideration of insects in their systematic sequence, it will be found that the treatment is not that of the usual text-book in entomology, but rather that of the agricultural entomologist, prominent species being very fully discussed as to their methods of work, the amount and nature of the injury, and especially as to the means of control or prevention.

Under the latter consideration we find much matter of direct value. The method of control is based naturally upon the character and habits of the noxious insect. This relation is shown, and the remedial or preventive treatment is given, with the reason why. The recommended practical measures are then given in full detail of formula, and of time and mode of application, so that even the unskilled need make no mistake. All this matter is so presented as to be

eminently readable, the technical element being largely eliminated.

Professor Smith has long been a pronounced advocate of cultural methods in insect control, and he here presents his argument in a convincing manner. His chapter on "Farm Practice to Prevent Insect Attack," will bring new ideas to many a reader, and will point the way for what must be, on the farm at least, the most profitable or practicable line of operation. The chapters upon "Preventives" and "Insecticides" will also be found suggestive as well as practical; and under the latter heading, the reader will find condensed most of that which is useful of the widely scattered results of experimental entomology everywhere.

In a word, it should be said of the book that it is the nearest, of published works, to the ideal of a practical hand-book. It should be in every Kansas farmer's library.

REMINISCENCES OF MY FIRST YEAR IN THE ARMY. II.

BY H. G. CAVERNAUGH,
(Captain Thirteenth Infantry, U. S. A.)
Professor of Military Science and Tactics.

ON the 8th of March, 1862, we were to witness for the first time a real engagement with the enemy. It was, however, a naval one. We were deeply interested, as well as greatly depressed, as to the result. About noon, a peculiar looking craft, resembling a huge roof or partly submerged house, came down the Elizabeth river (one of the tributaries emptying into Hampton Roads) about the same time the steamers Yorktown, Patrick Henry, and another Confederate gunboat came down the James river, all making straight for the Congress and Cumberland, United States vessels. The former, a sailing frigate (wooden), carrying fifty guns; the latter, a sloop of war (wooden), carrying twenty-four guns, made a pretty picture as they lay at anchor off Newport News, which is at the mouth of James river.

This mysterious-looking craft, we were soon told, was the wonderful iron-clad Merrimac, carrying twelve guns that we had often heard so much of while under construction at Portsmouth navy yard. This yard is opposite the city of Norfolk, Virginia. The Merrimac was one of the vessels captured by the Confederates when they took possession of the city and yard, and they changed her construction to what was then supposed would be the more modern style of war vessels.

There appears to have been no doubt in the minds of the naval officers of the Confederacy that she could, without hindrance, annihilate the blockading squadron, demolish Fortress Monroe, Washington, Baltimore, and the base of McClellan's army on the York river; and for some time we felt that their anticipations would be realized.

Crowding the roofs of houses, barns, and all eligible points of observation, we saw the ram attack the two wooden vessels, treating with utter contempt the shower of heavy shot poured against her. Keeping on her course, making, after giving the Congress a broad-side, directly for the Cumberland, head on, which she struck with her steel prow, literally laying open its side, in fact, crushing it in, she left it to sink. Then, turning her attention to the Congress which, in the meantime, had been engaged with the Yorktown and Patrick Henry, the Congress, losing her commander, made for the shore, where she grounded and hauled down her flag.

The Minnesota, another of our large frigates, had grounded while going to the assistance of the Congress and Cumberland in too shallow water to allow the Merrimac to approach her with safety, so she steamed back to Norfolk. The burning of one and sinking of the other of our ships completed the havoc of that day.

During the afternoon and evening we could distinctly see the Congress burning, and about nine o'clock P. M. heard a terrific explosion, and we then knew the fire had reached her magazines. She had been set on fire by the guns (ours) at Newport News while trying to prevent the boarding of her by the men of the Yorktown and Patrick Henry. There were many of her crew killed, wounded, and drowned. Those who escaped did so by swimming to the shore.

The next morning nothing was seen of them but the shattered spars of the Cumberland a few feet above the water, with her flag still flying from the mast. Some years later, on my way home on leave of absence from the front at Petersburg, I saw the remains of the noble ship, but the flag was gone, evidently scattered to the winds, as it was never lowered by human hands.

The night brought us no rest, as it was known there was a large force of Confederates in the vicinity of Yorktown. We all supposed it would be used as a

co-operating land force; it was certain that the narrow and flat peninsula formed by Back and Hampton creeks, occupied by the infantry force, protecting Fortress Monroe on the mainland, would be untenable under the fire the enemy could bring to bear upon us; in fact, we thought it strange that no attempt was made at shelling our camp the day previous, or at any time during the engagements. We all expected it, as one of the convoys of the Merrimac deliberately steamed near to the mouth of Hampton creek, which was to the left of our line, and captured a sloop schooner loaded with hay, and not a shot was fired to prevent it, notwithstanding the fact that Fortress Monroe and the fort on the ripraps, situated less than one mile east in the channel of Hampton Roads and Chesapeake Bay, were fully armed with guns of long range and large calibre.

Our picket line was re-inforced during the night, and a detachment of my regiment sent to scout toward Newport News, by wagon road about ten miles distant; and later, as no news came of the enemy being in the immediate vicinity, an ammunition train was started for that place, as the command there had about exhausted their supplies, in their endeavor to do some execution, firing from the shore, particularly during the attempted boarding of the Cumberland, and in protecting from capture the men who were trying to reach the shore by swimming. It is said that the commander of the Merrimac was wounded by a rifle ball fired from the shore while he was looking from one of the portholes of his vessel.

The next morning great excitement prevailed when it was currently rumored that an iron-clad called the Monitor had arrived from New York during the night. We all eagerly scanned the broad expanse of water to see the new and modern war ship, which was destined to change the whole architecture of naval vessels and to encounter the dreaded Merrimac. We could see nothing of her or any other vessel that to us could successfully compete with so formidable a foe. About nine o'clock the Merrimac was seen coming down the Elizabeth River, and in due time she appeared in Hampton Roads, accompanied by the Yorktown and a small steamer loaded with excursionists from Norfolk to witness the engagement and probable destruction of the rest of our fleet. The ram Merrimac steamed at once for the Minnesota, which was still aground on the bar. We saw a puff of white smoke, heard a loud report, and with glasses could make out a dark streak on the water, something resembling what might be a black band-box. It was the Monitor, moving from the rear of the Minnesota, where she had anchored during the night. The Merrimac paused, appeared to reconnoiter the singular looking craft that had the audacity and impudence to send so defiant a challenge; then opened upon her with great vigor, at the same time altering her course, and made toward her mysterious antagonist. The Monitor at length came near enough for us to observe her shape and size. Some of the men pronounced it a "cheese box on a raft." After a while the battle grew hot and furious. The Merrimac rushed at the Monitor to ram her, but her long prow passed over her low deck, doing no damage. Before she could disengage herself, several shots were fired under her roof of rolled iron, doing considerable and fatal damage, and one or two shots were sent directly into her portholes. When the ram had succeeded in extricating herself, her appetite appeared to be appeased, and she drifted away without firing another shot, while the Monitor followed, firing with great precision. Finally, as it appeared, the Merrimac decided to return to Norfolk, which she did with the assistance of one of her convoys.

This action effectually put an end to the exploits of the Merrimac, and if she did make her appearance into the Roads thereafter, it was only to reconnoiter. If the Monitor steamed toward her, she would put back to her safe harbor.

Farm Sanitation.

It is a lamentable fact that farmers often fail to understand the importance of observing proper sanitary measures for the protection of the health and life of the members of their families against those dreaded diseases which have their origin in the accumulated animal and vegetable matter in a state of decay found around many farm premises, until they have made an appearance and taken some loved member. This often occurs through the ignorance of the farmer in regard to the danger from such sources. In cities and large villages, such matters are regulated by legislation and the requirements of health officers in the performance of their duties, but in country towns there is practically no supervision of such matters, and possibly such supervision would not be practical, but there should be frequent and

earnest effort put forth in calling attention to the danger of neglect in this direction.

In the practice of medicine, much importance is now attached to the prevention of diseases, and the services of a physician in the early stages of a serious disease have often been successful in warding off what would have been an incurable case if attention had been delayed. Some one has suggested the advisability of employing physicians by the year instead of when disease appears in the family, which perhaps will never be generally adopted, and yet there is more than a grain of common sense in the idea. There should be someone to call the careless farmer's attention to the sink drain that is breeding death-producing germs and distributing them through the atmosphere; to the decayed vegetables in the cellar; to the cellar drain closed by some obstruction; to the barn and cellar with all their poisonous bacteria and disease-breeding attachments; to the pollution of the water supply by the drainage from various sources, and to decaying animal and vegetable matter where it will contribute to the unhealthfulness of the surroundings. While a physician employed by the year might not make personal inspection of these disease-breeding sources, he would constantly keep the farmer's attention upon the danger from such conditions and cure the people by keeping them healthy.

It is not probable that this practice of employing physicians by the year will come into use, and yet the family physician above all others seems to be the person to whom we naturally look in the country for education along this line.

We boast much about the healthy conditions attending country life, yet we are forced to admit that sickness and death have invaded farm homes through the carelessness of the farmer in attending to the matters we have named. If a person meets death from the discharge of firearms in the hands of another, it is murder; but if from some disease caused by sink drain or pollution through the owner's carelessness, it is looked upon as a dispensation of Divine Providence. The crime in the latter case is no less than in the former. It is a stain upon the glorious reputation of the healthfulness of country homes that such conditions are occasionally allowed to exist. In the absence of legislation reaching such cases, there should be a constant effort made by all individuals and associations having for their object the advancement of the interests of the rural sections to impress the absolute necessity of proper and effective farm sanitation, and to educate the people in this important matter. The newspaper press has done much in the past in this matter, and can do much in the future.

There may be a reasonable excuse for the farmer in neglecting to do some things that would increase his bank account, when he already has a sufficient amount for his actual needs, but there can be no excuse for neglecting anything that will prevent the appearance of fatal diseases in his family and increase the health and prolong the life of those most dear to him when attention has been called to it. Along with various educational forces successfully operating in favor of better farming, better roads, better school privileges, and better economy in financial matters, there should be prominent attention given to better farm sanitation. This can be accomplished as we have said in some degree through the press, and also perhaps by more prominent attention to the subject in the instruction given in schools and academies; but no educational influence is so effective as platform discussion, and the more frequently and forcibly this matter can be intelligently advocated the less will there be to pay for the attendance of physicians upon cases of typhoid fever, diphtheria, and similar diseases and less deaths will occur among the fair occupants of our farm homes. Much discussion is had in regard to sanitary measures necessary to prevent diseases among the farmer's animals, which is of vast importance; but when compared to the matter of protecting the lives of human beings from similar germs of disease, it sinks into insignificance and comparatively demands but a small place in the attention of farmers to such matters.—*Mirror and Farmer.*

FARM NOTES FROM VARIOUS SOURCES.

Upon the heavy four-wheeled vehicles used for hauling loads in France the tires are seldom fewer than six inches in width, and the rear axle is about fourteen inches longer than the other, so that the hind wheel runs about an inch outside the track of the fore wheels. Such wagons are regular road makers.

A map of the farm, with each field numbered, and its size, quality of soil, etc., specified, will be a great aid in keeping track of the year's transactions; and how few know the expense of each grown crop the year past, and what have your cows, pigs, sheep, and chickens paid you? Which was the most profitable, and why?

While labor is spent without stint upon many a farm, that management is lacking which is all essential to success. There is no balancing of a ledger to know just how much on the right or wrong side the owner has come. Such lack of management would soon wreck any commercial enterprise, and it is not surprising that often "farming does not pay."

The singular beauty of the wild growth that takes possession of undisturbed waysides makes one of the great pleasures of driving in the hill towns, and more out-of-the-way portions of every country region. When the road-makers, in a spasm of zeal for "cleaning up," cut and slash along the highway, reducing this tangle of loveliness to heaps of slowly withering "brush" and a scarred and stony bed, it is enough to bring tears to the eyes of the discerning.—*Garden and Forest.*

Calendar.

1896-97.
Fall Term—September 10th to December 19th.
Winter Term—January 5th to March 27th.
Spring Term—March 30th to June 10th.
June 10th, Commencement.
1897-98.
Fall Term—September 9th to December 18th.

To School Officers.

The College Loan Commissioner has funds now to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioner and the State Agricultural College. Address C. R. Noe, Loan Commissioner, Leon, Kan.

GENERAL LOCAL NOTES.

The Term Social will be held Wednesday evening.

There will be no College exercises on Thanksgiving Day.

The Alpha Beta Exhibition will be held on December 5th.

Prof. Georgeson and Secretary Graham attended the State Dairy Convention at Abilene, last week.

The foot-ball team plan a visit to Junction City on Thanksgiving Day, to play against the Fort Riley eleven.

Secretary Graham has a place on the program of the Riley County Educational Association to meet at Randolph, December 2nd.

Saturday evening about twenty members of the Fourth-year class enjoyed a "four-in-hand" moonlight ride to the Cedar Creek school house, where one of their former classmates, A. L. Frowe, is installed as teacher.

W. O. Peterson, Fourth-year, finished the course on Thursday with an examination in mechanics. Mr. Peterson would have graduated with '96 but for deficiencies occasioned for the most part by absence on account of ill health. As it is, he has devoted four years and eight weeks to the course. He begins a four months school next week at Bremen, Marshall County.

Geo. T. Fairchild, President of the Kansas State Agricultural College, was elected President of the National Association of American Agricultural Colleges at the meeting of the Association at Washington, D. C., recently. This is not only a merited honor to President Fairchild, but it also shows the standing of the institution which he and his able Faculty have made second to no college of its kind in America.—*Riley County Educator*.

The Fifth Division of the Junior Class entertained the public in Chapel Saturday afternoon in the following program: "Our Debt to the Past," Inez Manchester; "Injustice," Bessie Lock; "A Consistent Protective Tariff Impracticable in a Democracy," A. G. Wilson; "Little Geniuses," Kate Zimmerman; "Beecher's Estimate of Wendell Phillips," E. O. Farrar; Music, Vocal Solo, Lottie Eakin; "The Clouds," Nannie Williams; "An Old Wife's Kiss," Emma Doll; "Fielden's Defense," E. V. Hoffman; "Opinions Stronger than Armies," G. D. Hulett.

The following College folks took part in the Musical Concert at the Methodist Church, Thursday evening with credit to themselves and the institution they represent: Prof. Brown, leader, Harry Brown, Phil Fox, Karl Hofer, F. O. Westemeyer, Ed. House, members of the orchestra; Messrs. Patten and Jolly, members of a vocal quartette; Miss Gill, in a piano solo; Miss McHugh, in a recitation with piano; Misses Tacy Stokes, Gertrude Rhodes, and Maude Barnes, in a piano trio. Jenny Smith, '94, sung a contralto solo; W. E. Smith, '93, C. W. Lyman, '96, and Harry Brown, Fourth-year, performed in a quartette of stringed instruments; and Miss Lillie Eakin, student in the first of the fall term, rendered a piano solo and carried the soprano in a vocal duet.

Some surprise has been expressed that the INDUSTRIALIST has not condemned the boisterous conduct of certain students in Chapel on Saturday afternoon, November 14th. While the action of the students is open to criticism, it has ever been the policy of the INDUSTRIALIST, as the official organ of the College, to ignore breaches of discipline except they be of a decidedly serious character, necessitating Faculty action, when sometimes publicity is given to the affair to correct the many misstatements which are made through malice or ignorance of the facts—generally the latter. It is not the province of the INDUSTRIALIST to criticize or scold students, this paper not being a means of communication between the Faculty and the student body. The College authorities depend largely for the preservation of general good order upon the sentiment of this body itself. That they can safely trust to this sentiment is shown by the promptness with which the students themselves condemn the act in their Societies and in the *Students' Herald*. So long as this student sentiment against breach of decorum or discipline prevails, as it ever will in any well-governed institution (making it, in fact, self governing), there will be no serious disturbance; or, should there perchance be such, the students will be found ever ready and willing, even anxious, to condemn and correct it.

GRADUATES AND FORMER STUDENTS.

W. O. Staver, '94, practices law in Kansas City.

Fanny Parkinson, '96, is a teacher in the Pomona schools.

J. R. Harrison ['88] of Salina passed through the city yesterday on his way home from Kansas City where he took the regular examination for postal

clerk and passed without an error.—*Manhattan Nationalist*.

G. H. Dial, '96, teaches the Rose Hill school, five miles north of Riley.

Geo. W. Owens, student last year, visited college for a few days last week.

John Stingley, '94, is learning embalming in a Kansas City undertaking establishment.

E. J. Albett, '95, writes from his school in Scandia, Kan., of successful work and good prospects.

E. H. Snyder, '88, editor of the Highlands (Colo.) Chief, is a member of the State Board of Agriculture.

B. Dougherty, '96, spent several days last week with College friends. He is a successful collector in Kansas City.

A. L. Peter, '96, is studying medicine in the Homeopathic College at Denver. He plans to complete the Course of three years.

E. B. Coulson, '96, will, according to the *Herald*, take a place for two years as Deputy in the Clerk's office of Harper county.

R. S. Reed, '92, writes from Matfield Green, Chase County, where he is teaching, that he cannot do without the INDUSTRIALIST.

R. S. Kellogg, '96, had a place on the program of the Northwest District Teachers' Association at a recent meeting in Russell county.

Florence R. Corbett ['95] has been employed as teacher of the primary department of the Ogden schools.—*Riley County Educator*.

M. G. Spalding, '96, writes of his school at Lapland, Kansas, "Students and faculty still on good terms, which makes it rather monotonous for the faculty."

Martha Fox, Fourth-year in 1895-6, has returned from a visit of several months with relatives in Minnesota and Wisconsin. She plans to join the Senior Class next term.

W. E. Smith ['93] of Manhattan was granted a three years certificate as normal institute instructor by the State Board of Education last Wednesday.—*Manhattan Nationalist*.

Fred Collett of Elk, Chase County, First-year in 1891-2, was married to Miss Edith Phillips of the same place on the evening of October 31st. Mr. Collett is prospering as the blacksmith at Elk.

J. B. Brown, '87, Superintendent of the Indian School at Ponca, Ok., read a paper before the Third District Convention of Indian teachers at Lawrence, entitled "Common Sense in School Management."

C. L. Marlatt, '84, visited the first of last week with his parents. He has just returned from California where he investigated the ravages of the scale insect for report to the Entomological Division of the Department of Agriculture at Washington, of which he is First Assistant.

Rev. W. C. Howard, class of '77, has been transferred from Richmond, Ill., to Truckee, in eastern California, where he is doing missionary work. His wife will be remembered by old settlers as the Miss Cassie Moore of those days, also a college student. She is in poor health.—*Manhattan Republic*.

October 27th a marriage license was issued to Mr. Guy M. Hallam of Denver, Col., age 24 years, and Miss Martha Campbell of Wall Street, Kan., age 23 years [Second-year in 1890-1], and they were joined together in marriage at Wesley Chapel on October 28th, 1896, by Rev. R. U. Waldraven ['89].—*Torch of Liberty*.

The following graduates have a place on the program of the Riley County Educational Association at Randolph, Dec. 2nd: "Some Personal Reminiscences in Wales," "Elizabeth Edwards, '92," "The Origin and Development of Child Study," W. E. Smith, '93; "Do We Teach Pupils to Think?" Nora Fryhofer, '95; "Founders of American Literature," Grace Secret, '96; "Individuality in School Work," G. W. Finley, '96.

Gertrude Coburn, '91, Professor of Domestic Economy in Iowa Agricultural College at Ames, is spending six weeks of her vacation in Chicago engaged in the study of Sanitary Science under Miss Marian Talbot of Chicago University. She adds: "I rejoice with the College as I hear of its prosperity and large numbers this year, and still read the INDUSTRIALIST with much the same enthusiastic interest that we give to friendliest letters."

D. R. Working, '88, Secretary of Colorado Agricultural College, concluded a recent letter with two paragraphs of interest, namely: "Members of our Board who are somewhat familiar with Mr. J. E. Paynes's ['87] work think he is the best man the Experiment Station has ever had in a similar position. They praise him for his originality, his ingenuity, and his diligence. Of course this pleases me, as he was elected on my recommendation.—I am glad to learn by the INDUSTRIALIST that my Alma mater is so prosperous."

W. D. Gilbert, class of '74 at the College, now a prominent attorney in Atchison, went down into the Ozark Mountains of Arkansas recently to take a deposition in a district court case. He had an experience which is thus related by the *Atchison Globe*: "The witness in the case was a thoroughbred backwoods Missourian. Gilbert began questioning him closely, and was about to pin him down and catch him in a lie, when the Missourian stopped, pulled a long, wicked-looking knife from his pocket, opened it, and put it on the table. The Missourian did not say a word, but indicated by a sweep of his hand that he was ready to proceed. Gilbert did not pin him down any closer.—*Manhattan Republic*.

Farmers' Institutes.

Institutes have been appointed and assignments made from the College as follows:—

Russell, Russell County, December 4th; Prof. Georgeson.

Oneida, Nemaha County, December 10th and 11th; Professors Hitchcock and Willard.

Nortonville, Jefferson County, December 17th and 18th; Prof. Olin and Mrs. Kedzie.

Oak Grange, Shawnee County, December 17th and 18th; Prof. Georgeson and Mrs. Winchip.

Hackney, Cowley County, December 29th and 30th; Professors Failyer and Mason.

Hiawatha, Brown County, December 30th; Dr. Mayo.

Overbrook, Osage County, January 21st and 22nd; Professors Mayo and White.

Berryton, Shawnee County, February 11th and 12th; Secy. Graham and Mrs. Kedzie.

Haven, Reno County, February 11th and 12th; Professors Lantz and Popenoe.

Accessions to the Library.

Maine Bureau of Labor Report, 1887, 1888, 1889, 1890, 1891, 1892, 1893, 1894, and 1895.

Massachusetts Bureau of Labor Report, 1893 and, 1894.

Massachusetts Statistics of Manufactures, 1888, 1889, 1890, 1891, 1892, 1893, and 1894.

Ohio Bureau of Labor Report, 1887, 1893, and 1894.

Illinois Bureau of Labor Report, 1892.

Illinois Coal Report, 1887 and 1894.

Indiana Bureau of Labor Bulletins, 1-5

Physiology of Plants, Sorauer.

Butterflies of North America, 2nd Series, Edwards.

Minnesota Agricultural Experiment Station Report, 1895.

Honest Money, Ross.

Europe in the Nineteenth Century, Judson.

Life of Major General John Paterson, Egleston.

Donation from Author.

Trees and Shrubs of Massachusetts.

Family Kitchen Gardener, Buist.

Flowers for the Parlor and Garden, Rand.

Scientists' International Directory, 1896.

Rule of the Turk, Green.

Eighth Special Report of Commission of Labor, 1895.

Original Sources of European History, Vol. 2.

New Dairy Industry, Sarg.

Manual of Army Cooks, 1896.

Official Army Register for 1896.

Influence of Dress in Producing the Physical Decline of American Women, Kellogg.

Functions of the Church, Fairchild.

New Crusade, Wood-Allen.

COLLEGE ORGANIZATIONS.

Student Editors.—W. B. Chase, Emma Finley, E. Shellenbaum.

T. M. C. A.—President, S. J. Adams, '98; Vice-President, G. D. Hulett, '98; Recording Secretary, O. S. True, '98; Corresponding Secretary, J. M. Pierce, '98; Treasurer, R. B. Mitchell, '99.

T. W. C. A.—President, Emma Finley; Vice-President, Maggie Correll; Recording Secretary, Ethel Wolfley; Corresponding Secretary, Mary Waugh; Treasurer, Lucy Cottrell.

Webster Society.—President, W. B. Chase; Vice-President, J. B. Norton; Recording Secretary, S. Nichols; Corresponding Secretary, F. Zimmerman; Treasurer, C. Masters; Critic, R. J. Peck; Marshal, C. D. Lechner; Board of Directors, R. W. Bishoff, S. B. Newell, R. B. Mitchell, C. C. Jackson, P. K. Symms.

Tonian Society.—President, Winifred Houghton; Vice-President, Emma Finley; Recording Secretary, Jessie Bayless; Corresponding Secretary, Bonnie Adams; Treasurer, Dora Shartell; Critic, Myrtle Hood; Marshal, Clara Long; Board of Directors, Harriet Vandiver, Minnie Copeland, Olive Long.

Alpha Beta Society.—President, C. W. Shull; Vice-President, Grace Dille; Recording Secretary, G. D. Hulett; Corresponding Secretary, Elsie Waters; Treasurer, Kate Zimmerman; Critic, Alice Shofe; Marshal, Anna Streeter; Board of Directors, J. M. Westgate, Marion Gilkerson, G. D. Hulett, Sophronia Channell, May Pierce, F. J. Rumold, Florence Harling.

Hamilton Society.—President, W. L. Hall; Vice-President, C. B. Ingram; Recording Secretary, A. D. Whipple; Corresponding Secretary, Guy F. Farley; Treasurer, B. F. Durant; Critic, H. M. Thomas; Marshal, T. E. Thomas; Board of Directors, O. E. Noble, Chairman, H. McCaslin, Secretary, G. G. Menke, Wm. Poole, Wm. Anderson.

November 21st.

The Websters waited impatiently to be called to order after their two weeks vacation. F. Zimmerman offered prayer. J. V. Petteys, S. J. Meier, C. V. Bunch, and J. L. Postlethwaite were added to the member roll; then—

"There were ninety and nine that safely lay
In the shelter of the fold,
But one was out on the hill away,"
Yet he came back to sign the roll.

Geo. Martinson delivered a declamation on part of an address in the Continental Congress. Old time patriotism fired his blood. The debate, "Resolved, That Tennyson appealed more to the common mind than Longfellow did," was argued pro and con by S. Dolby and R. Long. It was shown that Longfellow's verses were mostly about the poor, depressed, and afflicted; his verses were especially appealing to love-sick people and people that wanted to have this disease, while Tennyson educated the mind and ennobled the soul. Mr. Long argued that Longfellow showed his pureness of heart and beautiful nature by writing about the poor and needy; the poem of Hiawatha has helped the Indian very much. Both speakers read many beautiful passages from these authors. Mr. Dolby asked that no vote be taken on the debate through respect to these poets. M. Wheeler presented the Reporter, with the motto, "His mind is his kingdom, his will is law."—Cooper. The paper lived up to its motto and many strong-minded pieces appeared. H. Hanson had a discussion on "Discussions." He said the time of discussion was nearly wasted, but a large number responded in favor of the discussions. Critic's report brought forth extended criticisms. The boys were opposed to the boisterousness exhibited in Chapel a week ago Saturday. The reporting of expense bills and other business occupied the time until adjournment.

F. Z.

KANSAS EDUCATIONAL NOTES.

BY PROF. J. D. WALTERS.

Topeka employs nineteen colored teachers.

The next meeting of the National Educational Association will be held at Milwaukee, Wis., in July, 1897. Kansas will send at least twenty carloads of teachers.

J. A. Ramsey, ex-superintendent of Anderson County, has prepared a teachers' register. It is adapted to grade records as well as attendance, and is made for the teacher's report to the district clerk. Crane & Co., Topeka, are the publishers.

In a country school house near Glendale, last week, Teacher Amy Allmon of Carini township called up a primary class to recite, when one of the larger pupils struck her with a cinder and another with a chunk of coal. This was a signal for a general attack and the young woman was beaten and some of her clothing torn from her. Better disposed pupils defended her to the extent that she was able to seek safety in flight, after which she resigned.

In the football game at Lawrence on Saturday, November 14th, between the Kansas University and Doane College of Crete, Neb., Bert Serf, the quarter back of the Nebraska team, was so badly injured that he died Saturday night without having regained consciousness. The fatal accident occurred in the last half, when less than one minute was left to play. Kansas had the ball within a few yards of Doane's goal, when Serf tackled Speak, the Kansas full back. In making the tackle, he fell and was rendered unconscious.

The Thanksgiving meetings of the different State district associations of teachers will be held on Thursday and Friday, November 26th and 27th, in the following places: The Central Kansas, at Newton; the Southeast Kansas, at Fort Scott; the North Central Kansas, at Clay Center; the Southwest Kansas, at Wellington; the Northwest Kansas, at Colby; the Western Kansas, at Leoti, the Golden Belt, at Russell. One and a third railroad rate for return passage will be granted by all railroads.

The committee of State Superintendent Stanley, President A. R. Taylor of the State Normal School, Prof. William Davidson of Topeka, and Superintendent D. F. Shirk of Dickinson county, which was appointed two years ago by the State Teachers' Association to prepare a uniform course of study for the public schools of this State, were in session this week at the office of Superintendent Stanley completing the work. The course of study will be completed and ready for distribution in a week. The new uniform course of study will make some material changes in the arrangement of the studies as now taught in the different grades of the public schools.

Kansas State Horticultural Society.

WEDNESDAY, DECEMBER 9.

Call to order, by President Wellhouse.

Prayer, by Chaplain G. W. Burge, of Lincoln Post, G. A. R.

Reading of Communications.

Appointment of Temporary Committees.

County Fruit Reports.

Revision of Fruit Lists.

Address of Welcome, Hon. C. A. Fellows, Mayor of Topeka.

"A Practical Fruit Farm," A. Chandler, Argentine.

"Cooperative Marketing," W. D. Cellar, Edwardsville.

Reports of Officers.

"Forestry for Western Kansas," S. T. Kelsey, Kawana, N. C.

THURSDAY, DECEMBER 10.

Reports of Standing Committees.

Revision of Constitution.

Election of Officers.

Business Discussion, "Good of the Society."

Revision of Fruit Lists.—Concluded.

Revision of Fruit Manual.

Horticultural Discussions on Planting, Cultivating, Spraying, etc.

"Glass in Horticulture," William H. Barnes, Topeka.

"The Monster in Horticulture," Hon. Edwin Taylor, Edwardsville.

"Good Times for Everybody," Miss Lucy D. Kingman, Topeka.

"Hardy Garden Flowers," Prof. E. A. Popenoe, State Agricultural College.

FRIDAY, DECEMBER 11.

Revision of Fruit Manual.—Concluded.

Horticultural Discussion on Evaporating, Marketing, Storing, etc.

General Horticultural Discussion.—Continued.

"Grapes and Apricots."

"Cold Storage," George Richardson, proprietor of a successful cold storage at Leavenworth.

"Birds in Horticulture," Prof. L. L. Dyche, State University.

"Pear Culture," B. F. Smith, Lawrence.

Fairness of Experiment Station Tests.

An alleged organ of fertilizer manufacturers harms the interests of its patrons by publishing the following statement: "The majority of farm-press writers, as well as experiment stations and state agricultural boards, are hostile to chemical fertilizers." If this were true, intelligent farmers would think twice before investing in a single ton of commercial fertilizer. Our experiment stations are manned by those who are not only paid to learn the exact truth, and give it to the farmers, but whose reputation as scientific investigator depends upon the nearness with which they approach the facts. They have a natural ambition to make a record that further investigation

will not discredit, and thus all influences combine to inspire confidence among farmers in experiment station results. Farm-press writers are equally desirous of teaching truth, and state agricultural boards are composed of our most intelligent farmers. Truly, if all these men believe that chemical fertilizers cost more than they are worth, entailing loss in the end, the sales of chemicals would be cut in two at a single stroke.

The statement made is not only indiscreet, but also untrue. All leaders in agricultural thought believe that there is a legitimate use of chemical fertilizers. The claims of interested parties have seemed too broad, and the stations are sifting the truth. It is being learned that the indiscriminate use of chemicals is a losing business, and that some soils are not responsive to the use of any chemicals. Honest manufacturers have no objection to a disclosure of the facts, believing that it is to the best interests as well as the farmers that the unwise and wasteful use of chemicals be stopped. The best teaching of today is that farmers should cease being dependent upon the advice of agents who want to increase sales, and should make careful experiments upon their farms. Appearances are deceptive, and the scales should be used in determining results. Some chemicals are merely stimulants, and lead to impoverishment of the soil; others are true plant-food, the use of which pays, under some conditions and fails to pay under others, and some are more profitable in their use than others. Here are problems, and the stations are at work upon them. Study the bulletins, and use them as guides in further experiment on your own soils.—*Farm and Fireside.*

Electricity.

The paradox of modern science is furnished by electricity. In no other department of science has progress in the matter of application been so great that experts can well afford to acknowledge that what they now know with regard to the true nature of the subject is less than what they professed to know a quarter of a century ago.

An expert, writing in a recent number of one of the magazines, asks, "What is electricity?" and replies to his own question, "That is a question no man can yet fully answer."

A college president said not long ago, "No man knows what electricity is." In his "Dictionary of Electrical Words, Terms, and Phrases," Doctor Houston defines electricity as "The name given to the unknown thing, matter or force, or both, which is the cause of electric phenomena."

Twenty-five years ago the textbooks on physics attempted to give a clear understanding of what positive electricity is and what negative electricity is. The definition to-day of positive electricity is, "One of the phases of electric excitement," and the definition of negative electricity is the same except that the word "electrical" is used instead of "electric"—both meaning the same thing.

The intimate connection between electricity and light is well known, but the knowledge seems only to make the true nature of electricity more mysterious than before.

Yet electricity has come to be a "matter or force, or both," that is almost indispensable in the daily life of the civilized world. The "unknown thing" has been made to furnish power, light, and heat. It has been harnessed for the service of mankind, and no man knows what is the thing in harness. The street-car motorman who calls it "juice" knows as much about the real nature of it as the wisest experts know.—*Youth's Companion.*

Electricity in Agriculture.

For some time it has been demonstrated that electricity applied to the soil in which seeds are planted stimulates their growth. At Amherst college and Cornell University, experiments have been made in a limited way, testing the influence of electricity on the growth of fruits, flowers, and vegetables.

The first real electric farm and garden in practical operation on a large scale is on the Jersey coast, about fifty miles from New York City, and the first consignment of vegetables raised by electricity is about to be placed on sale in the New York market.

The owner of the farm is Thomas Flemming, who is a thorough gardener and electrician, having served an apprenticeship in both lines.

A large stream of water flows through the farm, and this is used in generating electricity. Plows, rakes, harrows, mowing machines, are all worked by electric motors, and the dropping of the seed is performed by planters that can be regulated to meet the required distance.

The cultivation of the plants after they have come up is done by small plows. Weeds are electrocuted. A small electric wagon goes across the field or between the rows of plants and drags a heavy wire netting upon the ground. A powerful electric current is applied to this, and every weed or vegetable growth that it touches is instantly killed. A lighter current applied to the plants stimulates a rapid growth and increases the size.

The effect on the flowers in the greenhouse raised under the influences of the electric light is very curious. At first the light proved injurious to many blossoms. The color of tulips was deeper and richer for a few days, but they lost their brilliancy when exposed to sunlight. The color of scarlet flowers turned to grayish white, and while all bloomed earlier

and produced larger blossoms, they soon faded. By reducing the intensity of light and covering them with opal glass globes, the injury to their quality was lessened.

These flowers seem abnormal monstrosities. They are double the ordinary size and exceedingly brilliant when kept in dark rooms during the day-time and used only for evening decoration.

The explanation of the increased growth of plants under the influence of electricity was thought to be the extension of the working season for them—the continuous light preventing them from resting at night, but it is now generally conceded by scientists that electricity helps the plants to assimilate the nitrogen of the atmosphere and favors them in taking up certain mineral salts of the earth.

A point of great importance which Mr. Fleming expects to prove is that the cost of producing fruits, flowers and vegetables stimulated by electricity will be less than when cultivated in the ordinary way. He is a practical man as well as a theorist, and utilizes power in every available way in order to produce the greatest results with the least possible expense.

The public will watch with interest the progress of Mr. Flemming's work. It may be found that we are just at the beginning of a new era in agriculture and that the farmer is no longer to eat his bread in the sweat of his brow, as he has done since the primal curse. Under the influence of electricity the lost Eden may be restored and thorns and thistles no longer burden the ground.—*Chicago Chronicle.*

How to Treat a Wound.

Three useful things to have in the farmer's home as a provision in case of wounds not sufficiently serious to necessitate the calling in of the medical attendant are a spoonful of adhesive plaster, some iodoform gauze, and a package of carbolated absorbent cotton. Cleansed and dry as nearly as may be the cut surface with a wad of cotton, using moderate pressure and elevating the part if necessary to check the flow of blood. Do not apply any water. Bring the cut surfaces together as accurately as possible and retain them there with as few and as narrow strips of the plaster as will suffice: cut them off a good length. Then cover the wound with a dozen or so thicknesses of the iodoform gauze, which should extend an inch at least beyond the wound. Over the gauze apply a liberal layer of the absorbent cotton, allowing it in turn to extend beyond the gauze. The cotton may be kept in place by a bandage of cheese-cloth, or, where suitable, a part of the leg of a stocking may be drawn over it. Moderate pressure, if evenly distributed, is helpful. Keep the part moderately elevated, and take care there is no constriction of the limb above the wound by a garter or otherwise.—*Rural New Yorker.*

Agriculture and chemistry are so closely allied that every person who attempts to practice the one should make some study of the other. This is what our boys at the agricultural colleges are doing, and there is no reason why the farmer class should not be most cultured and enlightened of all men.

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SCHULTZ BROS. offer Fresh and Salt Meats in great variety. Students are invited to call at their market on Poyntz Avenue, one door east of Fox's bookstore, or give orders to delivery wagon.

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F. C. SEARS, M. S., Horticulture.

THE SETTLEMENT OF THE UNITED STATES FROM THE ATLANTIC TO THE ALLEGHANIES, 1607-1763.

BY PROF. FRANCIS H. WHITE.

IN a previous article, a brief account was given of the parts which the Indians, Spaniards, and French have played in the settlement of the United States. These races have, indeed, been influential, but the English colonists, supplemented and reenforced by emigrants chiefly from northern Europe, have done by far the largest portion of the work. Steadily and swiftly they have moved across the continent. Three stages of settlement are observable: First, from the Atlantic to the Alleghanies; second, from the Alleghanies to the Mississippi; third, from the Mississippi to the Pacific. These stages are distinct, differing not only in time, but also in the difficulties encountered, in the methods of transportation employed, in the rapidity of settlement, and, to a certain extent, in the character of the settlers.

THE SOUTHERN COLONIES.

No man ever had more faith in the future of America, or gave more substantial proof of that faith than Sir Walter Raleigh. The money, strength, and thought that he lavished upon his efforts to colonize Virginia are without a parallel in the history of new countries. It is estimated that an amount equivalent in our times to more than a million dollars was spent by Raleigh in his several attempts. To obtain the right persons, transport them across thousands of miles of stormy water, plant them in an unbroken wilderness, and then support them for several years while getting a foothold, was shown to be too great an undertaking for one man. But Raleigh's failures paved the way for later success, and his enthusiasm was undoubtedly communicated to others. The organization of the London and Plymouth Companies was due in part to him, and experience gained in previous efforts was utilized.

Space will not permit a detailed account of the organization or operation of these companies. Their charters gave them permission to "search for all manner of mines of gold, silver, and copper," from which, and from the character of many of the emigrants sent out, it is clear the companies hoped to find a second Mexico or Peru. The instructions to the Virginia emigrants reveal a very mistaken conception of the width of America. For example, they are told to observe whether the river on which they plant springs out of mountains or out of lakes. "If it be out of any lake, it is like enough that out of the same lake you shall find some spring which runs the contrary way toward the East India Sea."

Both the first settlers at Jamestown and the stockholders of the London Company were grievously disappointed at the financial returns of their enterprise. At the very outset a mistake was made in trying community of property at Jamestown. After a few years' trial, it was found better to establish individual ownership of land and to allow each to retain the products of his farm or the profits made by trading.

In Maryland, Virginia, the Carolinas, and Georgia, the plantation method of settling prevailed. Here a group was held together not by political and religious bonds, as in New England, but by family and economic ties. At the head of each group was the master surrounded by his wife, children, and dependent relatives; beneath and subject to them were their slaves, few or many, according to the master's wealth. Together these people constituted a little independent community called a plantation. Having complete control of his labor force, it was possible for the southern planter to strike out more boldly and take up places that a northern settler, dependent entirely upon his own exertions, the kindly assistance of neighbors, or expensive free labor, could not use. This ownership of labor made it mobile in the hands of the master. In a few words it would be impossible to state at all adequately the great influence this plantation system had upon the political, economic, and intellectual life of the South. In the early times, plantations were frequently separated by several miles of woodland. The first settlements of southern colonies, even more than of the northern, followed as far as possible the rivers, for they furnished the chief means of transportation to the outside world and were navigable for quite a distance.

The trustees of Georgia made an earnest effort to encourage small farms and establish villages by offering fifteen acres and a town lot to each settler, and providing that this land should not be alienated

without their consent, and should descend to the eldest son. The plan did not work satisfactorily, however, fraud and discouragement resulted, and it was finally given up. Nevertheless, the small farms were more numerous in Georgia than in any other southern colony except North Carolina, where they outnumbered the plantations.

THE NEW ENGLAND COLONIES.

The Plymouth Company made an unsuccessful effort at colonization near the Kennebec river, Maine. A band of Puritan "Separatists," however, having obtained permission to establish a colony in the territory claimed by England, secured financial aid from some London merchants and planted an independent settlement at Plymouth in 1620. They, too, tried the communal system for a while, and though they were far more united in every way and therefore had a better chance of success than did the settlers of Jamestown, they found the system hurtful rather than helpful, and were soon forced to abandon it for the individual ownership of property.

In 1629, a royal charter was obtained incorporating the Company of Massachusetts Bay, and a large grant of land was secured. Political and religious affairs had reached such a crisis in England that Governor Winthrop and other influential Puritan members of the Company determined to emigrate to America. This they did in 1630, sailing in eleven vessels. Four years later, several thousand colonists had arrived, and many small towns had been established.

The prevailing method of settling New England was by the establishment of towns. No doubt there were individual settlers who cut loose from their fellow, and pushed out into the unoccupied land, but they were exceptional. The usual plan was to swarm, and the meeting house was the nucleus around which the settlers gathered. When the original town became too straitened for the inhabitants, or some other locality offered greater advantages, it frequently happened that a number of citizens would join themselves into a company to establish a new community.

Very early in the history of Massachusetts this method of settling was adopted. The General Court declared in 1635 that it was necessary, "in order to keep their communities compact for their greater security," "that hereafter no dwelling houses should be built above half a mile from the meeting house, in any new plantation."

It is interesting to see how, as in old Greek times, one community gave rise to another, by sending out a colony of its citizens, who under new conditions reproduced, perhaps with some modifications, the customs, organizations, and institutions of the mother city. A contemporary authority gives us some of the details of the process. The General Court granted a tract of land to Charlestown, which delegated its powers to seven persons, and these established the town of Woburn. Two objects were kept in mind—agriculture and religion. Lots were assigned near the meeting house for homes, and more extensive grants of land were made on the outskirts of the town for farming. A certain number of the most worthy of the proposed settlers were elected to church membership and assumed the responsibility of the enterprise. Johnson, in his "Wonder Working Providence," says: "They refused not men for their poverty, but in some cases helped them to build houses." "The poorest had six or seven acres of meadow, and twenty-five of uplands or thereabouts." "Thus was the town populated to the number of sixty farms, and after this manner are the towns of New England populated."

THE MIDDLE COLONIES.

The Dutch merchants, following in the wake of Hudson, established trading posts at Manhattan Island and at Albany. Other Dutch traders now began to press in, tempted by the profits of the fur trade with the Indians. In 1621, the Great West India Company obtained a charter from Holland, and proceeded to colonize as well as trade. In a few years, thriving settlements were established near Albany, on the South River, on Long Island, and on Manhattan.

It was found, however, almost impossible to turn the attention of the colonists from trading to agriculture, and so, in order to effect this purpose, a peculiar plan was adopted, some details of which will be given, as it illustrates a method of settling the country.

The Company offered to any of its members who would found a colony of fifty persons, an extensive estate having a frontage of sixteen miles on the

Hudson river and extending westward indefinitely. The proprietor, it seems, was to be something like a feudal lord, and exercise many feudal privileges. He was also allowed to trade within the dominion of the Company. Advantage of this liberal offer was soon taken, and thus was founded the Dutch patroon system, some portions of which have survived to this century. Still, the plan was not a success. It is interesting to note that neither in the Carolinas, in New France, or in the New Netherlands did the feudal system of the old world flourish. In this case, no large emigration could be induced to come under the conditions fixed by the proprietors. Disappointment because population failed to increase rapidly, frequent troubles arising between these influential patroons and the Company, the monopoly of the trade by the Company, and the paternal character of the government at last brought about great changes: the trade monopoly was abolished, and complete ownership of land by the settlers was offered; the patroons were restricted to estates with a frontage of one mile on the river and extending westward but two. Unfortunately, however, their feudal privileges were not abolished. The wisdom of the changes enumerated above was proven by the results, for emigrants came from several quarters, and the various settlements became prosperous.

When Penn came into possession of his 40,000 square miles of territory lying west of the Delaware River, he proceeded to settle it by offering land at forty shillings a hundred acres and subject only to a small quit rent. These terms were, of course, tempting, but the offer of a tolerant and liberal government was even more attractive. Not only English quakers, but Germans and Irish in large numbers flocked to the new colony. For example, Franz Pastorius organized a company in Germany and took fifteen thousand acres. The first settlers established themselves near the Delaware River, but later comers pushed out boldly into the interior, sometimes as communities, but often as individuals.

"THE GREAT WORLD'S FARM."

BY PROF. A. S. HITCHCOCK.

IT is well known that botanical works are too technical for the general reader, and it is also true that the so-called popular botanies are exasperatingly inaccurate. This unfortunate state of affairs probably arises from the unwillingness of capable botanists to spend the necessary time for presenting facts in a readable shape, and, on the other hand, because the writers of our popular works have so frequently been ludicrously lacking in scientific training and knowledge.

We have before us, however, a book which presents up-to-date botanical information in a remarkably pleasing manner. This book, by Selina Gaye, the title of which, as indicated above, gives a clew to the treatment of the subject, is one of the very few that can be recommended to the general reader who does not care to master the technical language of botany, or who may be repulsed by the usual threadbare style. The author compares the earth to an immense farm in which Nature is the farmer. She traces the various processes necessary to the growing of Nature's crops; the preparation of the soil, the sowing of the seed, the cultivation and watering of the crops, the friends and foes of the crops, the delicate balance of forms, and the methods by which equilibrium is retained.

A quotation from the introduction will illustrate the method of treatment: "In his garden at Santo Domingo, Nicaragua, Mr. Belt, the naturalist, sowed some scarlet runner beans. The soil was good, the climate was favorable to bean life, and the scarlet runners grew and flourished, and finally blossomed abundantly, but as it proved, finally, for here their career ended. They did not produce a single bean among them, simply because the right laborers were not at hand to give the requisite help. The garden in which the beans grew had been recently taken from the forest, by which it was still surrounded; and that the laborers in this part of the farm were not idle was quite evident from the abundant luxuriance of the vegetation. But it was tropical vegetation, and as it did not include scarlet runners, these were in the position of foreigners whose appeals for assistance were not understood. It was in vain they put forth the bright flowers which were well known signals in their native land, and would there have brought them the helpers they needed—no one noticed them. They were made welcome to the soil, the rain, and the sunshine, and then they were left to themselves and their master with the result already mentioned—no fruit. And who were the gardeners whose absence proved to be of such vital importance? Humble bees, only humble bees, and indeed, only the

particular species of humble bees which wait upon scarlet runner. There were plenty of others, but they did not understand, though very probably they would have come to do so in the course of a few seasons. As it was, however, failing of these insect laborers, there was nothing to be done—nothing to take their place. Man has not yet discovered any substitute for the bee."

Chapter II. treats of the mineral food required by plants—Nature's farm crops; how it is gradually formed from various rocks by Nature's forces—water, frost, air. These forces are called pioneer laborers.

Chapter III. But the soil is not yet prepared. These necessary ingredients must be mixed in proper proportion by other laborers—soil makers. Rocks are crumbled down by lichens, lava beds are broken up by cactus roots.

Chapter IV. Soil carriers do their share in the farm labor. Wind and water transport the soil to favorable localities. "Vesuvius is said to smother and destroy the crops in its neighborhood every eighth year, but it is this very fact which makes the soil so wondrously fertile during the other seven."

Chapter V. It is often necessary to bind the soil in place when once transported. Mud banks are covered with plants having long and rapid-growing underground stems; sand hills are held in place by matted grasses; mangroves reclaim land from the sea. These laborers are called soil-binders.

Chapters VI. and VII. But the soil must be constantly cultivated to insure good crops. The soil is stirred, mixed, turned inside out, as it were, by burrowing animals. Even the much-despised mole and gopher are shown to be important factors. Crabs, beetles, ants, and above all, earth-worms, make the soil porous, plow it by their constant burrowing. Soil from beneath is brought to the surface in a fine state of division. The roots easily follow the excavations. Animal and vegetable matter is taken below to slowly decompose. "It seems probable that they [earth-worms] bring up more than ten tons of soil to the acre in many parts of England year by year, and that the entire mass of mould—the dark surface soil of every field—passes through their bodies in the course of a few years and is by this means sifted and rendered extremely fine, besides being thoroughly impregnated with vegetable and mineral matter."

Chapter VIII. treats of the use of water to plants, especially methods to prevent losing water after it is once obtained from the soil.

Chapter IX. Deserts and the particular kind of crops Nature raises here. St. Helena is shown to have been changed from an island of luxuriant vegetation to a rocky desert through the removal of the forests. Goats were introduced; they ate off the vegetation; the rain ceased. Complaints were made that the goats were destroying the ebony trees. "But the authorities were not to be persuaded that there was any connection between the loss of trees and the want of rain, and returned for answer that the goats were more valuable than the ebony-trees, and were not to be destroyed. So the goats stayed and the ebony trees went; and the general aspect of St. Helena became that of a dreary, rocky desert."

Chapter X. The work of roots.

Chapter XI. The food which various plants take from the soil. Continued cutting and removing salt plants from salt land will soon reduce the amount of salt in the soil. The beneficial action of clover, nitrogen in the soil, putrefaction, bacteria, and similar subjects are discussed with reference to Nature's methods of manuring or fertilizing.

Chapter XII. Leaves and their work. How leaves manufacture food for the plant.

Chapter XIII. Climate. The relation of moisture and temperature to Nature's crops.

Chapter XIV. Blossom and seed. The function of the flower is discussed.

Chapter XV. The golden rule for flowers.

Chapter XVI. Guests, welcome and unwelcome. "Get fertilized, cross-fertilized if you can, self-fertilized if you must," that is Nature's golden rule for flowers." These two chapters deal with the relations of flowers and insects. Prof. Asa Gray is quoted: "If these structures and their operations do not argue intentions, what stronger evidence of intention in nature can there possibly be? If they do, such evidences are countless, and almost every blossom brings distinct testimony to the existence, and providence of a Designer and Ordainer, without whom, we may believe, not merely a sparrow, not even a grain of pollen may fall."

Chapter XVII. Seed scattering. A joke on Darwin occupies a very small part of this interesting chapter. "When making experiments to ascertain how long seeds might remain in salt-water without being

killed, Mr. Darwin was delighted to find that some grew after twenty-one days immersion. Many ocean-currents, as he reckoned, travel at the rate of a mile an hour, so these seeds might be floated five hundred miles without being any the worse. But, alas! he had overlooked one thing. The seeds had been under water all this time; and as Dr. Hooker reminded him, 'if they sink, they won't float!'"

Chapter XVIII. Seed-carriers. The same subject is continued with special reference to the carrying of seeds by animals. "Eighty-two plants have been grown from the earth taken from the leg of a single partridge, and that after the earth had been kept three years."

Chapter XIX. Chances of life.

Chapter XX. Friends and foes. The struggle for existence is sharp. The chances of life are often only one in many thousand. The Brazil nut is given as an example of the bifurcated dilemma. "There are from twelve to fifteen nuts—or, strictly speaking, seeds—in each ovary or case, which is filled with matted roots sent out by one and all. At the lower end, where the fruit was attached to the stalk, there is a small opening, and the fortunate individual which gains possession of this exit may eventually burst the case with its roots, and so make its way into the soil. But the shell is extremely hard, and so far as has been observed, it is not often that even one single plant succeeds in freeing itself. But then, on the other hand, if the shell were less hard, none would probably ever escape the hosts of animals ready to devour them; for sprouted nuts, taken out of the case and planted, have been found to be all dug up and eaten by rats."

Chapter XXI. Nature's militia. "Birds are nature's soldiers, and keep in subjection the inferior animals. Their other uses are scarcely worthy of notice compared with their labors in the destruction of insects." Many examples are given of the disastrous results following a neglect of this rule.

Chapter XXII. Man's work on the farm. Man makes great changes in the equilibrium of Nature. He kills off the trees, turns up the soil, introduces the English sparrow into the United States, the rabbit into Australia; the artichoke into South America, where it has become a vile weed. Weeds in general seem to depend upon the work of man for their spread.

TO KANSAS PUBLISHERS.

THE INDUSTRIALIST is sent to every newspaper in the State, so far as known, and receives in exchange a goodly number. These are carefully read for items of State interest, and as carefully filed in the library for the convenience of students, who inquire regularly for their county papers, and are disappointed often that they do not find them.

There is something of interest for our students and faculty in every newspaper in Kansas, and there should be something of like interest for the editors in the Kansas State Agricultural College, which offers a free education to the youth of the State.

Send your paper to the College.

An Example of Intensive Farming.

A noteworthy example of intensive farming, says a writer in *American Agriculturist*, is that of Mr. E. Segling, McKean county, Pa., who supports himself, a wife, and five children on two acres of land. They have a neat little cottage, and the hard times have not affected them nearly as much as many a family dependent upon a work shop. Mr. Segling is a carpenter by trade, and before opening up his little farm built his house at odd times while working at his trade. From the first he has recognized the necessity of securing quality rather than quantity from his labor and land if he would make them pay. Celery is his specialty, and he has marketed as much as 30,000 stalks in a season. He practices a rotation, which includes grass, usually having nearly enough to keep one horse in hay. He understands the secret of getting two crops in one year from the same soil, and his only hindrance has been lack of rain. Now, however, he has bought a boiler and steam pump and expects to control his water supply. Such pluck and energy ought to receive the victor's wreath. Whatever else he lacks, he is not taxed for a quantity of useless territory; and wastes no time and strength traversing poor and large fields. He sometimes uses as much as 75 loads of stable manure on half an acre. There is a valuable lesson in this, for most farmers who have too much land, use too little manure, and crop at an excessive cost per ton or bushel as a consequence.

Calendar.

1896-97.
Fall Term—September 10th to December 19th.
Winter Term—January 5th to March 27th.
Spring Term—March 30th to June 10th.
June 10th, Commencement.
1897-98.
Fall Term—September 9th to December 18th.

To School Officers.

The College Loan Commissioner has funds now to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioner and the State Agricultural College. Address C. R. Noe, Loan Commissioner, Leon, Kan.

GENERAL LOCAL NOTES.

The Biennial Report of Regents and Faculty is in press.

Mrs. J. L. Carney of Manhattan showed a visiting friend through the College on Friday.

Mrs. Kirshner and children of Kansas City are visiting President and Mrs. Fairchild.

Copy for Bulletin No. 62, "Smuts," from the Botanical Department, is in the hands of the printer.

George Martinson, Second-year, was called home on Friday by a telegram announcing the sickness of his brother.

The College foot-ball team was defeated by the Fort Riley team at Junction City, on Thanksgiving Day, by a score of 14 to 0.

Miss Nellie Chaffee of Moodus, Conn., and Miss Bessie Burnham of Alma visited College on Saturday with the Misses Kimball.

President Fairchild talked of "Sights in London" to the young folks of the Congregational Church, Saturday evening, at Prof. Failyer's.

C. F. Bartholomew, First-year, was called last week to the death-bed of his father in Kansas City, and is obliged to leave his college course to take charge of a ranch at Greeley, Anderson County.

Maj. Wm. M. King, of Glencarlyn, Va., agricultural editor of the Washington Post, writes in a recent letter: "I appreciate the INDUSTRIALIST highly, and expect to give credit often to the valuable articles it contains."

Prof. Nichols gave an exhibition of the Roentgen rays before a company of fifty ladies and gentlemen in Regent Hoffman's parlors at Enterprise, Tuesday evening. The audience consisted chiefly of members of a local scientific club.

The Third Division of the Senior Class occupied the attention of the public last Saturday afternoon in the following program: "The Marble Waiteth," Winifred Houghton; "Ancient American People," C. H. Hoop; "Autumn," Gertrude Lyman; Music—Instrumental Solo, Edith Huntress; "The Golden Age of English Literature," Ina Holroyd; "The Pseudo Physician," C. B. Ingman; "Drifting vs. Rowing," Myrtle Hood.

The cold weather of the past few days is probably without precedent at this season. Thursday afternoon the wind shifted to the north, and by Friday morning the temperature had fallen to 10°—a change of about 40°. Ice formed all day Friday, and Saturday morning the thermometer recorded a temperature of 3°, as it did Sunday morning. The coldest Novembers in the College record of thirty-six years were: 1863, 1°; 1871, 4°; 1872, 2°; 1874, 3°; 1875, 2°; 1876, 0°; 1877, 2°.

GRADUATES AND FORMER STUDENTS.

A. K. Midgley, '91, is employed in a lumber yard at Salina.

Stella Kimball, '94, spent part of her Thanksgiving vacation at College.

L. W. Hayes, '96, writes from Reedsville of the delights of a country life.

Ada Rice, '95, teacher at Randolph, enjoyed a visit with Manhattan friends last week.

H. N. Rhodes, '95, spent the Thanksgiving vacation at home. He teaches above Ogden.

S. H. Creager, '95, of the *Kansas City Journal* visited with College friends Friday, and spent Sunday with his sister at the University.

Minnie Romick, '94, a teacher at Niles, took part in the program at a recent teachers' meeting in Minneapolis.

O. L. Utter, '88, is taking a course in Boston University this winter. His address is 72 Mt. Vernon St., Boston, Mass.

Ida R. Pape of Topeka, Fourth-year in 1895-96, was married, November 18th, to Mr. August Lemkau of the Lawrence Germania. They live in Lawrence.

Thomas Bassler, '85, sends an engineering problem or two from Batchelder, O. T., where he runs a saw-mill and a cane-mill, and is erecting a grist-mill.

W. R. Browning, '89, writes from Padonia, Brown County, where he is connected with a grain dealing firm, handling more than 200,000 bushels of grain.

T. C. Davis, '91, member of the next Legislature from Wilson County, addressed the students in Chapel on Friday morning, testifying to the truth of the so-familiar statement from the Chapel platform in past years that the best result of college training is "the learning to do what you don't want to do at a time when you don't want to do it." He will look

after the interests of his Alma Mater in the Legislature this winter.

C. C. Smith, '94, teacher in the Wabunsee schools, ate turkey with his parents in Manhattan.

D. E. Zirkle of Richland, Shawnee County, student in 1894-5, is engaged in a general merchandise business with his brother, W. E. Zirkle, student in 1889-90.

W. H. Phipps, '95, was in town yesterday on his return from a teachers' meeting at Clay Center. He enjoys his duties as Principal of the Abilene grammar school.

G. W. Smith, '93, Principal of the Minneapolis schools, spent the Thanksgiving vacation at home. He visits the Junction City and Abilene schools on his return.

W. E. Smith, '93, was surprised by his pupils of the seventh grade, Manhattan Schools, Monday evening. Mr. Smith spent Thanksgiving Day with his mother in the Ozark region of Missouri.

W. A. Cavanaugh, '96, of Company D, Twentieth Infantry, full back of the Fort Leavenworth football team, made a phenomenal play in a contest with a visiting eleven the other day. The visitors, after unavailing efforts to make gains by hitting the line, resorted to a field kick. Cavanaugh was guarding his position carefully, and making a tremendous leap into the air, caught the ball almost between the goal posts, and then, to the surprise and delight of the spectators, aided by good interference, but depending chiefly on skillful dodging, cleared the field and led his opponents' sprinters a merry race to the other end of the gridiron, making a touch-down with plenty of room to spare.

The Leap-Year Party.

As the hands of the clock approached eight, on Saturday evening last, had the darkness been less intense, innumerable happy Second-year girls could have been seen wending their way to the homes of their respective leap-year boys. The girls confessed it to be rather embarrassing to have the landlady answer their ring, and on their timid request to see Mr. —, he compelled to meet her horrified gaze over the tops of steel-rimmed spectacles. However, Mr. Whitford's was reached at last, and the fun commenced. The large, well-lighted rooms were conducive to a jolly time, and as everyone appeared in his very best humor, nothing marred the enjoyment of the evening.

Various games were played, in which our Faculty guests joined heartily, and at ten o'clock refreshments were served. The orange sherbet and cake, the boys voted "good," so the girls felt well-pleased with the result.

Before Father Time had pronounced it Sunday, the very weary Second-year girls were wending their way homeward, having escorted their gentlemen friends as far as the door. The boys are to be complimented on their girlishness, and the girls on their bravery.

The kind hospitality of the Whitford family is not to be overlooked, and their home is most certainly a pleasant one.

Among the guests present were Mrs. Kedzie, Mrs. Winchip, Miss Harper, Miss Rupp, Mr. Rhoades, Mr. Harry Whitford, and Mr. Menke. B.

Library Notes.

The Library has received from the State Bindery two hundred and eighteen new books and also sixteen volumes which had been sent for repair.

The Y. M. C. A. has donated a year's subscription to the *Christian Alliance*, and it will hereafter be found on file in the reading room.

One of the most interesting books added to the Library recently is the *Life of Major-General John Paterson of the Revolutionary War*, written by the donator, the great-grand-son of the Major-General, Mr. Thomas Egleston. The book contains numerous half-tone cuts besides a large number of maps drawn specially for the author.

Aside from the Public Documents, two books—a *Manual of Army Cooks, 1896*—and the *Official Army Register for 1896*, have been deposited by the United States Government.

The *Rule of the Turk*, by Fredrick D. Breene, is the name of a book donated to the Y. M. C. A. Library by Sam Dolby, Fourth-year. The author gives a history and review of the Armenian troubles. The book is highly endorsed by Hon. Wm. E. Gladstone.

The Fourth-year class in English Literature completed the study of the English authors last week and this week have devoted their time to the study of the most prominent American writers.

Miss Nellie Chaffee, librarian of the public library at Moodus, Conn., spent some time in the Library Saturday. Miss Chaffee has visited in Manhattan several times in years past, and never fails to give the College a pleasant call.

Mr. W. J. Griffing, '83, has donated an Archaeological Chart of Manhattan and Vicinity, drawn by himself. Mr. Griffing was a member of the Scientific Club, and this Chart shows some of the interesting work carried on by the organization. The chart represents an area of about 325 square miles upon which all the known Indian villages and burial mounds are located, there being seven villages and nineteen mounds shown.

Some weeks ago quite a large order for books was placed, and nearly all have been received.

Among these books are several works on tree culture which will be used as reference books by the special class in Forestry. A *History of the Last Quarter Century of the United States*, by E. Benjamin Andrews, in two volumes, is very interesting, and is handsomely illustrated by fine half-tone plates.

I. A. ROBERTSON.

Farmers' Institutes.

Institutes have been appointed and assignments made from the College as follows:—

Russell, Russell County, December 4th; Prof. Georgeson.

Oneida, Nemaha County, December 10th and 11th; Professors Hitchcock and Willard.

Nortonville, Jefferson County, December 17th and 18th; Prof. Olin and Mrs. Kedzie.

Oak Grange, Shawnee County, December 17th and 18th; Prof. Georgeson and Mrs. Winchip.

Hackney, Cowley County, December 29th and 30th; Professors Failyer and Mason.

Hiawatha, Brown County, December 30th; Dr. Mayo.

Overbrook, Osage County, January 21st and 22nd; Professors Mayo and White.

Berryton, Shawnee County, February 11th and 12th; Secy. Graham and Mrs. Kedzie.

Haven, Reno County, February 11th and 12th; Professors Lantz and Popenoe.

Bulletin No. 61.

This bulletin, from the Farm Department, details experiments with Kaffir-corn, corn meal, and Soy-bean meal for pigs, and Kaffir-corn and corn meal for cattle. The results are thus summarized:—

Red Kaffir-corn meal did not prove to be equal to corn meal as a fattening food for hogs. The poor gains of the Berkshires in lots I and III are, however, in the main, due to inferior feeding qualities. The Poland-China gilt in lot I, fed on Kaffir-corn, made a fairly good gain on this feed.

A mixture of two-thirds Kaffir-corn meal and one-third soy-bean meal produced excellent gains. The soy-bean meal apparently supplemented the defects of the Kaffir-corn meal in such a way as to make the mixture a desirable feed.

The pigs in lot III, fed at first on corn-meal and later on corn-meal and shorts, made better gains than the pigs in lot I, but in this case also, the Berkshires in the lot did not prove to be as good feeders as the Poland-China gilt.

A mixture of two-thirds corn-meal and one-third soy-bean meal gave slightly better results than Kaffir-corn meal and soy-bean meal. The conclusion to be drawn from this experiment is, that red Kaffir-corn meal is not as good a feed for hogs as corn-meal, but that when either Kaffir-corn meal or corn-meal is mixed with soy-bean meal the results are highly satisfactory.

SUMMARY FOR CATTLE-FEEDING.

While the experiment with cattle here recorded cannot have great weight, owing to the small number in the test, as well as the age and condition of the animals, it would, as far as it goes, in like manner indicate that red Kaffir-corn meal is not quite equal to corn-meal for fattening cattle, though the difference in favor of the corn is less marked than in the case of the hogs.

Manhattan Horticulturists.

The Manhattan Horticultural Society was called to order Thursday, November 9th, by President Sears.

W. Marlatt and L. R. Elliott were made delegates to the State Horticultural Society which convenes in Topeka, Kansas, December 9th.

Officers of the Society were made a committee to arrange a program for the ensuing year and report at the next meeting.

Committees reported as follows:—

On entomology—F. A. Marlatt said now was the time to destroy the eggs of the tent caterpillar; may be found on apple twigs. Also the insect known as "leaf crumpler," is common on young apple trees; should be picked off and burned, or they will come out of their small cornucopia-shaped leaf clusters in the spring and do damage to the young leaves and buds. Grape twigs that have borers in them should be gathered and burned. Said that his brother, C. L. Marlatt, of the U. S. Bureau of Entomology, had been investigating methods of fighting insect pests in California. Orange orchards were sprayed with the kerosene emulsion with great success. A large grower used a gasoline engine of one or two horse power; was cheaper and more rapid; was three months in going over the entire orchard. Other methods were mentioned.

On small fruits—Mr. Wells urged the covering of all tender bushes and shrubs with earth now; red raspberries should be covered without fail.

Prof. Failyer discussed the subject of "Soil Moisture." Freezing the ground tends to break up the soil; the rain, dissolving, tends to pulverize. Water is necessary to keep the plant tissues in proper condition. Usually enough rain falls in Kansas, if properly distributed, for the corn and other crops. Much of it will be wasted if the ground be hard and compact. Again, it may enter the soil, but drain away rapidly below. A great amount of moisture is always lost by evaporation. How can we retain more of this moisture? The more the soil is pulverized the more moisture it will retain by capillary attraction. Aim to open up the under soil so that the moisture will rise from below, then loosen the surface so that it will evaporate less freely. Experiments at the College

show that soil should be tilled or mulched to hold moisture well.

W. Marlatt then related his experience in apple raising in Kansas. Was one of the first to plant an orchard. Few seemed to think apples would do well here. After the orchard began to bear, he had ten years of continuous bearing. Sold in that time \$5,000 worth of apples. Since then insect pests have come—the codling moth, canker worm, etc.—and trees are rapidly decaying. Will fight the insects in the young orchards. Can spray 30 to 40 acres in a day with two men and a team. Should pick apples early to have them keep. If you have a large amount of apples, you can sell them. Would as soon risk fruit raising here as anywhere, Florida and California not excepted. It pays as well as anything you can raise on the farm. Does not require care in winter neither to be fed nor watered. Little to do but harvest the crop when the trees are once grown.

Some discussion followed both of the subjects treated.

Election of officers and a good program next meeting, December 17th.

W. J. GRIFFING, Secretary.

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T. W. C. A.—President, Emma Finley; Vice-President, Maggie Correll; Recording Secretary, Ethel Wolfley; Corresponding Secretary, Mary Waugh; Treasurer, Lucy Cottrell.

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November 21st.

The Ionian Society was called to order by President Houghton, and was opened with a song. Miss Grace Stokes led in devotion. The Secretary called the roll, after which Misses Swingle and Trumbull were elected to membership and initiated. They were welcomed with hearty applause. The program was opened with a prophesy by Miss Emile Finley. She mentioned the names of many of the prominent Ionians in this prophesy. Some, perhaps, were satisfied with their future as she told it, while others will make no great effort to fulfill the prophesy; but it all furnished amusement for the audience. Those whom she had not time to mention she invited to see her personally. Next, Miss Spohr read a most encouraging and helpful letter from one of our old presidents, Miss Minnie Pincomb. All were delighted to hear from her, and would be pleased to hear from others of our absent sisters. Miss Rena Helder played a pretty solo. Miss Anna Pfuetze gave a beautiful selection from Longfellow. The Oracle was edited by Miss Eva Kneeland. It was a credit to her. Next was a piano solo rendered by Miss Howells. The debate had been omitted for some weeks, and it was more entertaining than it used to be when it came every week. The affirmative was presented briefly by Miss Rhodes, the negative by Miss Johnson, and the neutral by Miss Bertha Spohr. The following orders were interesting to those present. The motion was made and carried, that our questions to be given at the close of each session should all be from the same author, the author to be named previously at the reading of the program. This, we think, will be a great improvement and will give interest to the order that in the past has been exceedingly dull. B. F. A.

November 28th.

The Websters' hearts beat like the air pump of a locomotive because the Star Entertainers were coming. M. Wheeler led in prayer. Debate was passed, and C. B. White gave us an essay entitled, "Talk, Wise and Otherwise." We think it was an all-wise production. At this juncture of the program the Star Entertainers were announced. The first two numbers were mandolin and guitar duets; the next two, banjo solos with piano accompaniment. The performance was fine, yes, even superfine, and we know nothing that could have made it better. It received our hearty vote of thanks. H. L. Goddard's declamation on "A Hornet's Nest" was quite lively when the people were being vaccinated by the hypodermic syringes of the hornets. He was interrupted by applause. W. J. Rhoades read the Reporter with the motto, "The desire to excel too often but leads downward." It gave an earnest plea to use what talents we have. The poetry was quite prominent. Altogether, it was a "short and sweet" paper. Frank Shelton had a quartette appear for him. They sang "Old Black Joe" and responded to an encore. Professor Will made his first visit to our Society and kindly gave us a talk, which we hope will not be the last one. J. B. Norton and L. Poston argued the affirmative of the question, "Resolved, That football should be suppressed by the Legislature in Kansas." Football is looked down upon as a brutal, hair-pulling, rib-mashing, shin-kicking, neck-twisting, nose-breaking game. Prize fights are prohibited, yet football goes free. The players are sports, live off of their fathers, and seldom amount to anything. Thanksgiving Day now is given up to brutal foot-

ball; yearly many are killed and thousands are left hopeless cripples; Romans liked to see gladiator combats, so we like to see football. T. M. Robertson and A. M. Ferguson said negatively, that Yale's best graduates were football players; it fits a man for the combats of after life; statistics show that no more deaths occur by this than any other athletics; enforcing rules will prevent foul plays; the game is rough, but not brutal; students need exercise to counteract the studying, and football gives this. The negative won the game. J. H. Blachly gave a discussion on the "Venezuelan Question," was also discussed by other members. As the few unbroken lights went out, our candles began to glimmer, and business was lively until adjournment. F. Z.

November 21st.

After an intermission of two weeks, the Alpha Betas again assembled, and were called to order at the usual hour by President Shull. The program opened with congregational singing, Mr. Hofer accompanying with the cornet. After prayer by J. M. Westgate, a vocal duet was rendered by Mr. R. W. Clothier and Miss Blachly, with Mrs. Hutto at the piano. The subject of Mr. Eastman's declamation was "Eternal Fidelity." Mr. Batton Thompson gave an interesting account and description of an old-fashioned "Husking Bee." Mrs. Hutto, a former Alpha Beta, then favored the Society with an instrumental solo, "The Chariot Race." The debate was something new, and all were interested. It was given in conversational style, on the subject of "Evils and Merits of the Average Newspaper." Kate Zimmerman told of its evil effects on society, while Mr. Rumold upheld its good qualities. The Gleaner was read by its editor, Harriet Thackrey, motto, "A single thought, if but your own, is better than a thousand others sown." Before passing to the order of recess, the Society was entertained with words of encouragement and appreciation from former Alpha Betas, who are still loyal, Mr. A. E. Ridenour, Misses Lucy Waters, Lorena Clemmons, and Mrs. Hutto all responding to invitations to address the Society. After recess, four of the Hamilton Band, Messrs. O. E. Noble, Pottorf, Stern, and H. C. Sanford, rendered a selection, and a hasty retreat evaded the call for an encore. Roll-call showed few absences. Various subjects were discussed extemporaneously by the members, "Students' deportment at the Chapel lecture," "Tickets for the annual," "Class duties vs. social duties," "Football," and various other topics were brought up for discussion. The business session was quite long, and at a later hour than usual the time for adjournment arrived. E. L. W.

The Influence of Music, Literature, and Art in the Country Home.

Mrs. Manchester, in her address before the Vermont Dairyman's Association, regarded home influences as powerful forces to bind young men and women to the farm. A few extracts are taken from her address. She said:—

"I venture to say that if the childhood of farmers' sons and daughters were made bright and pleasant, the power of association and memory would do much to keep them on the farm. And nothing can transcend an attractive home for that. To save the children for the farm, rather than to save the farm for them, is the problem we must solve. An hour's drive in the farming community of any rural district will convince one that too little thought and care are given to the appearance of the average country home. It should be an ideal home; the home of the beautiful; for it is cradled in the realm of nature, which is at best only copied by art. The ever varying landscape of mountain, hill, and dell, our crystal rivers, flowing toward the sea, our flower-spangled meadows, are a theme of inspiration to every lover of nature, and add fervor to the pen of the poet, the brush of the artist, and to a sculptor who can chisel a goddess from the granite in our cloud-capped hills.

"I have often thought the untidiness so often seen, with unkept lawns or littered grounds, and the failure to appropriate the beautiful in nature to our benefit, has had its influence to sicken the boys and girls of the farm. I do not decry farm labor in any of its many departments, but I contend that while we are raising crops for the physical realm we ought also to provide for the support and culture of the mental and spiritual realms of our being. I maintain they are our demands, and hence God's commands to us. The hand that placed the pink in the shell and the perfume in the rose, placed the aspirations and possibilities in us, that we desire that which is beautiful and beneficent."

"Music, that grand diapason of nature, thrills us with ecstatic joy as we listen to its symphonies, and elevates and refines the rudest spirit. It is said that Howard Payne, though immortalized in song, was redeemed by music.

"Literature and art are also essential in making a home attractive. We are living in a wonderful age in the world's history; it is the blossom of the centuries, whose fruitage we can gather in from accumulated thoughts of poets, sages, and philosophers of all ages. The air is filled with its richness, and is borne in on the tidal wave of advanced civilization until the boys plowing on the farms, the girls in the home, are filled with longings for its participation. "No one can afford to deprive himself of all the current literature that is found today. We want to keep in touch with the trend of the world at large, to feel somewhat the pulsations of the living thought of the present age."

"It is the source of great pleasure and restfulness of an evening to find *Harper's* or *Scribner's Magazines* or, better, the *Review of Reviews*, lying on the table, that you can read, with, of course, the daily and weekly papers. 'The homes of the nation are its strongest forts,' and in view of the fact that in the

hours of our greatest emergencies the farming community proved to be the bone and sinew of national safety, it is wise at least to consider if this source of strength can be saved. Much advancement in the right direction is being made among the farmers since the grange came among us. It is ennobling the farmer through his calling, and uplifting his vocation, causing him to stand a peer beside his brother in other pursuits of life. It is paving the way for a broader introduction of music, literature, and art into the home of the farmer, with a stronger intercourse with the great world about us. It is a power to make farming and its homes more attractive to the model youths and fair maidens of our land."

FARM NOTES FROM VARIOUS SOURCES.

The rough bark on old fruit trees is not designed as a protection. Nature is always endeavoring to throw it off, and its removal is a direct benefit. The embodiment of insects may be destroyed if it is removed. Besides, it shows that the owner is tidy and thrifty. It is a fact that the best orchards have the fewest rough trees.

It would be difficult to find a piece of land that when cultivated and sufficient moisture applied would not sustain vegetable life. Since moisture is one of the best fertilizers known, it must follow that the best system of farming is that which tends to preserve the natural moisture in the soil for the future demands of growing crops. It will pay our farmers to study well the subject of subsoil plowing.—*Oregon Agriculturist*.

The ways essential to modern sowing and harvesting are many, and are largely dependent upon mental power for execution. Farming today is as far advanced over the old beaten paths as the railroad is in advance of the stage coach. Successful farming cannot be done the old way, and the sooner the farmer abandons sentiment and adopts scientific and common-sense methods the sooner will he place his business in line with possible success.—*Exchange*.

We have too many farmers in this country who are trying to enlarge their business by broadening their acres. Now, wouldn't it be better to stop just where you are and begin a system of intensive farming, whereby your business will increase to your liking, and this with a greater margin for profit? It can be done—is being done by many of our best agriculturists—and if we can help any of our readers along in this direction we are at their service.—*Agricultural Epitomist*.

October and November are the best months for house cleaning out of doors, and if the work is not well done our gardens will be anything but a pleasing sight to look at. Every gardener should have a compost heap, and upon this put the corn stubble, cabbage stalks, and such material that has been left in the garden. Next year we may want some soil for some particular flower bed, and it is well to prepare for that now. Be careful about saving anything that will spread weeds. Clean out the fence corners and burn everything that may contain foul seed.—*Wallace's Farmer*.

In no line of business does the habit of procrastination work greater havoc than in farming. Last winter's reading, study, and attendance upon farmer's institutes convinced many a man that he should, by all means, have some improved implements for his spring operations. Just then, was the time to decide on the ones to be used, and then the time to place the order. Those who delayed until spring was at hand, found their orders delayed in filling, causing loss of time, and perhaps were compelled to work the entire season at a disadvantage. A year's time lost was the result of delay. And your wife may have decided, that in the interest of comfort and economy, you would put a furnace in your house for the coming winter. Have you done so? If not, better do so at once, or you will have yourself again among the list of procrastinators.—*National Stockman*.

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ON THE IMPORTANCE OF TEACHING FORESTRY IN PUBLIC SCHOOLS.

BY PROF. S. C. MASON.

BY the above title I do not mean that the technical methods of modern forestry, as it is understood in the Old World, and is just beginning to be understood in the New, should be taught in our common schools. Long before such teaching can be done, must come the primary work of teaching the pupil to know something about trees. As a nation, we have little knowledge of forestry in the sense of caring for and managing wooded lands so as to make them yield the most profitable returns in lumber and fuel, and still preserve the woodland character. We know still less of systematic planting of forest trees. Our national forestry policy has been very aptly described as that of "getting rid of the timber."

We are just beginning to pause, not because we are out of breath in this mad career of chopping, but because the trees to chop are not so plentiful as they were, and we must needs lean on the axe helve and consider what we can cut next that will be marketable.

While the chips cease for a moment to fly, and the echos of our strokes have died away, we may be willing to listen for a little to the warning words of those "alarmists" who tell us it is high time that we had a policy of preserving and managing in a rational way an adequate portion of the timbered lands of our country. We may even consent to look, as one of them points to a denuded mountain side where the very existence of the soil itself is threatened by the removal of the forest cover.

It is one of the most hopeful signs of the times that a man of such wealth as is possessed by Mr. George Vanderbilt should devote a part of his great estate to the practical solution of forestry problems, as he has done at Biltmore, his country-seat in North Carolina. It is worth a great deal that he should have brought to this country a carefully selected library of foreign works on forestry, for there are, as yet, few American books on this subject. These books, and the forests of the estate, he proposes to place at the disposal of students who shall wish to study into this subject. It will be worth most of all when we see American students hastening to this spot from all the States of the Union; for then we may be sure of a forestry sentiment among the people.

In the meantime, let us have more teaching about trees in our common schools, our high schools, and colleges. Before this can be done, teachers must be taught, trained to observe, brought to know and love the trees of their own region.

If the cultural value of such study were only appreciated as it should be, such work would surely be pursued for its own worth, aside from the practical ends it might serve. If anyone would know how much of the true artistic feeling can be brought to the study of trees, let him read the chapter on "The Beauty of Trees" in that charming book, "Art Out of Doors," by Mrs. Schuyler Van Rensselaer. He will not read this chapter without reading the others.

With a knowledge of the species of trees and the thoughts directed to their traits of character, habits of growth, favorite haunts, individuality, how much is added to one's capacity for enjoyment! To be sure, there are a good many miles of plains in our land where even the lone cottonwood is not to be seen, but for the most part we have a wealth of trees and a greater number of species than are found in any other civilized country.

The evening stroll, the morning spin on the wheel the railway trip to the city, do not find us out of sight of acquaintances, and they afford us no end of the very best recreation and quiet pleasure. How quickly school children can be interested in the trees of their neighborhood if only they have a teacher filled with the love of nature, will be a revelation to one who has never seen it tried. A few simple lessons on the characters of the leaves and twigs, the flowers and fruit, will develop powers of observation quite undreamed of in some listless or wayward pupil.

It may be said that all this is not forestry, which I will admit, with the assertion that there can be no true forestry without much of this.

The forestry practices of European countries are of comparatively recent development, and were the outgrowth of their needs after they had gone through periods of wasteful tree-destroying similar to our own. While we may profit greatly by the wisdom they have gained, and should be prompt to avail ourselves of all that will help, yet there is much

in their methods that cannot be applied ready-made to our conditions.

A literature on real American forestry is yet to be written by American forest students who have been trained to know and love American trees from their youth. It will have for its foundation certain great principles discovered and applied by our brethren across the water, because these are common to all forest growth; but the superstructure built upon these must be peculiar to our land.

I would not for a moment decry the work of foreign students of forestry, for when the day comes, as it surely will, in which we can say we have an American forestry literature, we shall honor, as we have not yet learned to do, the men of foreign birth who, amidst indifference, and even opposition, have helped to teach the American people to know and love and care for their own trees.

THE MEXICAN BOUNDARY LINE.

BY PROF. D. E. LANTZ.

BY the treaty made at Guadalupe Hidalgo at the close of the Mexican War, February 2nd, 1848, the boundary line between Mexico and the United States was fixed as follows: The Rio Grande from its mouth to the southern limit of New Mexico; thence westward along the southern and northward along the western boundary of that territory to the Gila River; thence down that river to the Colorado; thence westward to the Pacific Ocean. Disputes soon arose over that portion of the line between the territory of New Mexico and the State of Chihuahua. The maps on which the former treaty with Mexico were based were found to be incorrect. Santa Anna, who was then President of the Mexican Republic, sent troops to occupy the disputed territory, and a second war with Mexico seemed to be imminent. This was, however, avoided through the services of Mr. James Gadsden, who was United States Minister to Mexico.

It was on December 30th, 1853, that Mr. Gadsden, on behalf of our Government, signed the convention by which the disputed territory was ceded to the United States, and by which a more southern boundary than the Gila River was secured for the territory west of the present limits of New Mexico. This, the so-called Gadsden Purchase, cost our Government ten millions of dollars. A boundary commission soon afterward surveyed the entire boundary line from the Rio Grande to the Pacific Ocean. They set about fifty monuments to mark the line, which has a length of nearly seven hundred miles. These monuments were not of durable material, and were carelessly set, so that by assistance of Indians and other border vandals, a quarter of a century was sufficient to obliterate most of the marks upon the line. Their absence has been the source of many territorial disputes between the settlers on opposite sides of the line; and the civil and military officers of both Governments were often at a loss to determine questions of jurisdiction. So great were the difficulties encountered that, by mutual agreement, a treaty was entered upon in 1882, providing for a new Commission to mark and perpetuate the boundary. This Commission has just filed its final report with the Secretary of State at Washington, through Col. J. W. Earlow, Corps of Engineers, United States Army, one of the Commissioners on the part of our Government.

The Commission consisted of six persons, three representing each government. Those on behalf of the United States were Lieut.-Col. Barlow and Lieut. D. D. Gaillard, U. S. engineers, and assistant A. D. Moshan, of the Coast and Geodetic Survey. The Commission held its first meeting at Ciudad Juarez in November, 1891, when general plans for carrying on the work were adopted. Operations in the field began near El Paso, at Monument No. 1, about February 1st, 1892. There were about sixty persons in the camp with all necessary supplies of wagons, animals, tents, scientific instruments, and other equipment.

The actual field work of the survey occupied this party for about nineteen months, but when the magnitude of the undertaking and its peculiar difficulties are considered, this is a remarkable record for speedy work. The line crosses three distinct desert regions, the Tule, the Yuma, and the desert of Southern California from the Colorado River to the eastern walls of the Coast Range. On these deserts water had to be hauled for men and animals sometimes as far as 100 miles. While working at Sonoyta, the mean temperature was 126 degrees in the shade. The dry air made it quite possible for the men to work when the mercury in the shade registered from 100 to 120

degrees, but there was always a time from about eleven A. M. to three P. M., when no outside work was possible because of the effect of the heat upon the instruments. Of the fifty original monuments, the Commission was able to identify the location of forty-three; but they were in every case replaced by new shafts of stone or iron. There are now 258 monuments on the line, an average of one in two and a half miles. Where the country is more thickly settled, they are about a mile apart, but in the deserts they are at intervals of about five miles. Except in two places, there are no monuments which may not be seen from the nearest one east or west of it.

Wherever material could be had, the shafts are of solid masonry, twelve feet high, and about six feet in diameter at the base. These are set on good foundations, and ought to be permanent. In the deserts, where stone could not be obtained, iron shafts six feet high, two feet square at the base, and one foot at the top, and terminating in a pyramid, were used. They are bolted to concrete foundations or to solid rock wherever possible. On the north side of each monument is an inscription in English telling the purpose of the monuments and warning persons against defacing or displacing them. A similar inscription in Spanish is on the south side of the monuments. On the east and west sides near the top are holes to receive a flag staff or a range pole. A few of the monuments, notably those at important and thickly settled points on the boundary, are built of excellent granite or marble, and they are now surrounded by steel picket fences, eight feet high, to protect them from the vandalism of relic hunters, who had carried away piece-meal large portions of the original monuments at these places. Monument No. 1 is about two miles west of the city limits of El Paso, and they are numbered consecutively up to 258, which is a few yards from the sea at San Diego, Cal. No monuments were placed on the line of the Rio Grande, since the river itself is a sufficient mark of boundary, and no disputes have ever occurred over that part of the line. It would seem that there could be no ground for any future controversy between the people of the two republics on account of the line which has been thus marked and perpetuated.

Sense of Duty.

Whether it is instinct or unconscious cerebration or the influence of inherited experience—we all know and acknowledge that we have within us some kind of monitor, telling us what we ought to do and ought not to do. The existence of such a monitor independent of our personal experiences and the lessons taught us may be doubted, but that it is developed very early in life must be acknowledged. The child somehow—possibly by reasoning from analogy—knows when he is doing something that is wrong, even though he has not done it before and has received no warning on the subject. It seems at times as though domestic animals possessed, to some degree, the same instinct. It is quite certain that the monitor within us may be encouraged to fresh activity or may be rendered sluggish by our treatment of its commands. Those who listen to its warnings and obey develop a lively conscience which allows them no rest in wrongdoing. They have duty before them at all times and grow morally strong in preforming it. On the other hand, those who refuse to listen to their inward monitor grow callous by familiarity with disregard of its counsel and in time become, as it were, morality deaf. Children should be trained to have a high sense of duty and to make sacrifices on its account, but the training should be from within. To force a child to do that which is right may so disgust him with duty as to lead him to rebel at the first opportunity. It would be better to permit him to go wrong occasionally, provided that at times he should be led by his own accord to do his duty in spite of its disagreeable character, for it is only when he listens to his monitor of his own free will that he obtains the mental and moral exercises required to strengthen it.

Boys and girls with a clear sense of right and duty, with lively consciences they are accustomed to obey, go out into the world armed against evil. They instinctively avoid the temptations presented by coarse companions and the allurements of city life. And if they do a wrong, conscience reproves them so that they get no enjoyment from it, and remembering the experience, avoid the next temptation. No admonition is so powerful as that which comes from one's conscience. The young person who behaves well from fear of his parents, or even through love of them, but who is without any personal incentive to right living, is not so secure against temptations as the self-reliant young man who asks himself whether a proposed course is right or wrong, and is guided by his conscience. Our conscience, if we heed it, is always with us; our guide or preceptor may be absent when he is most needed. Men soon learn to

recognize in others obedience to conscience as distinguished from obedience to law or custom. And those who show by their actions that they have a high sense of honor and duty, and act accordingly, soon gain the confidence and esteem of their fellows. This leads to friendship and to promotion. The young man or young woman can have no better or more productive capital than a keen sense and respect for honor and duty, which implies a lively conscience, whose warnings and reproaches are heeded.—*Baltimore Sun.*

Weather Report for November, 1896.

BY C. M. BREESE, OBSERVER.

Crop conditions continue about the same as at the close of October. The ground is in fine condition, and wheat is looking well. The weather has been perfection for stock feeding and husking corn. Corn is selling in markets of Manhattan at from 13 to 15 cents.

Temperature.—The mean temperature was 37.39°, which is 2.13° below normal. There have been 25 warmer and 12 cooler Novembers on our record. The highest temperature was 74°, on the 15th; the lowest, 30°, on the 28th and 29th—a monthly range of 71°. The greatest daily range was 40°, on the 26th; the least, 8°, on the 20th. The mean daily range was 21.77°. The warmest day was the 25th, the mean temperature being 63.5°. The coldest day was the 28th, the mean temperature being 11.25°. The mean temperature at 7 A. M. was 32.8°; at 2 P. M., 46.17°; at 9 P. M., 35.3°. The mean of the maximum thermometer was 49.4°; of the minimum, 27.63°; the mean of these two being 38.51°.

Barometer.—The mean pressure for the month was 28.904 inches, which is .082 inch above normal. The maximum was 29.53 inches, at 7 A. M. on the 30th; the minimum, 28.213 inches, at 7 A. M. on the 26th; monthly range, 1.317 inches. The mean at 7 A. M. was 28.913 inches; at 2 P. M., 28.882 inches; at 9 P. M., 28.918 inches.

Cloudiness.—The per cent of cloudiness was 40. This is a trifle above normal. The per cent at 7 A. M. was 51.67; at 2 P. M., 40; at 9 P. M., 28.33. Five days were entirely cloudy; two were five-sixths cloudy; two were two-thirds cloudy; one was one-half cloudy; ten were one-third cloudy; one was one-sixth cloudy, and nine were clear.

Precipitation.—The total rainfall was .91 inches. This is .37 inch below the normal. The table following shows monthly rainfall for 1896, the normal, and departure from normal:—

	Normal.	1896.	Departure from Normal.
January	.77	.31	-.46
February	1.06	.56	-.50
March	1.30	.87	-.43
April	2.72	5.49	2.77
May	4.13	7.41	3.28
June	4.43	2.63	-1.80
July	4.73	5.39	.66
August	3.61	2.26	-1.35
September	3.05	5.06	2.01
October	2.28	5.13	2.85
November	1.28	.91	-.37
Totals	29.36	36.02	6.66

Wind.—The wind was from the north twenty-two times; south, seventeen times; southwest, sixteen times; southeast, ten times; northwest, ten times; northeast, eight times; east six times, and west one time. The total run of wind was 8365 miles, which is 985 miles above the average. This gives a mean daily velocity of 278.83 miles, and a mean hourly velocity of 11.08 miles. The highest daily velocity was 534 miles, on the 26th; the lowest, 79 miles, on the 11th. The highest hourly velocity was 38 miles, between 4 and 5 A. M., on the 23rd.

The following tables give comparisons with preceding Novembers:—

October.	Number of Days.	Rain in inches.	Per cent of Cloudiness.	Prevailing Wind.	Mean Temperature.	Maximum Temperature.	Minimum Temperature.	Mean Barometer.	Maximum Barometer.	Minimum Barometer.
1858	9	.69	34	W	33.81	58	11	28.77	29.20	28.30
1859	4	1.20	69	S	45.43	84	10	28.77	29.28	28.17
1860	4	1.58	37	NW	36.93	68	10	28.77	29.28	28.00
1861	2	1.70	36	NW	42.26	74	16	28.77	29.21	28.25
1862	3	1.70	37	N	43.42	72	23	28.77	29.21	28.25
1863	4	2.23	34	SW	38.61	68	1	28.77	29.21	28.34
1864	4	1.61	41	N	36.20	58	10	28.77	29.21	28.34
1865	3	1.37	34	W	45.68	81	20	28.77	29.21	28.15
1866	3	.49	27	SW	44.48	96	7	28.77	29.21	28.34
1867	2	1.17	47	SW	38.08	62	16	28.77	29.21	28.34
1868	5	2.17	52	NW	36.87	65	20	28.77	29.20	28.30
1869	5	1.19	23	SW	44.81	74	17	28.77	29.21	28.34
1870	2	.13	54	SW	36.90	72	4	28.77	29.21	28.34
1871	5	1.96	40	NW	33.67	70	2	28.77	29.21	28.34
1872	0	.00	40	SW	41.63	79	12	28.77	29.28	28.17
1873	2	.82	58	SW	38.59	78	3	28.77	29.28	28.00
1874	5	2.12	58	SE	35.97	70	-2	28.81	29.45	28.32
1875	3	.34	52	SE	37.15	70	0	28.85	29.50	28.26
1876	2	1.75	52	NW	38.70	65	2	28.80	29.31	28.45
1877	6	1.90	53	NW	37.44	75	15	28.77	29.12	28.25
1878	2	1.90	35	NE SW	43.44	70	15	28.63	29.25	28.18
1879	6	7.83	45	S	42.72	70	15	28.74	29.21	28.25
1880	4	1.97	50	SW	39.24	68	7	28.70	29.11	28.17
1881	3	1.86	43	SW	40.99	79	15	28.79	29.09	28.34
1882	3	.95	42	SW	40.56	69	11	28.72	29.23	28.06
1883	1	.50	33	SW	41.45	70	12	28.59	28.90	28.15
1884	2	1.07	21	NW	42.78	84	22	28.63	29.82	28.34
1885	1	.19	21	SW	39.09	79	12	28.52	29.35	28.34
1886	2	1.24	32	SW	40.85	85	-9	29.10	29.60	28.67
1887	2	.44	32	SW	37.32	78	14	29.05	29.47	28.61
1888	2	.94	32	N	35.17	66	11	29.03	29.52	28.51
1889	4	2.23	42	N	41.94	76	16	29.02	29.53	28.49
1890	2	.91	30	SW	41.94	86	8	28.93	29.51	28.41
1891	5	.25	33	SW	39.77	72	13	28.90	29.32	28.48
1892	1	.65	26	SW	37.10	79	9	28.91	29.31	28.34
1893	3	.81	25	SW	44.93	79	6	28.93	29.35	28.28
1894	2	.10	31	SW	40.68	80	9	28.87	29.22	28.31
1895	4	1.17	51	S	37.39	74	3	28.90	29.53	28.21
1896	1	.91	40	N						
Sums	118	49.67	1469	SW	1501.7	720.44				
Means	3	1.28	39.7	SW	39.52	28.82				

WIND RECORD.

October.	Total Miles.	Mean Daily.	Maximum Daily.	Minimum Daily.	Mean Hourly.	Maximum Hourly.
1889	5485	182.84	344	47	7.62	26
1890	5938	197.93	323	51	8.25	31
1891	7938	264.60	529	64	11.03	36
1892	7956	265.20	570	94	11.05	43
1893	8966	232.20	467	48	9.67	38
1894	7680	256.00	468	110	10.67	33
1895	8711	290.37	562	84	12.10	37
1896	8365	278.83	534	79	11.08	38
Sums	59039	1967.97			81.47	
Means	7380	245.75			10.1	

Dairy Interests in Kansas.

Excepting those of a more local or personal nature, the following are the resolutions unanimously adopted by the Kansas dairymen in their recent annual convention at Abilene:—

“Resolved, that we extend our unstinted thanks to Professors Hacker of Minnesota and Curtis and McKay of Iowa for their very able and instructive lectures delivered before this Association; to Secretary F. D. Coburn of our State Board of Agriculture, for his invaluable work entitled, ‘Cow Culture;’ and to J. H. Monrad for his inspiring and life-promoting labors among us.

“Resolved, that we, as an Association representing the greatest interests of the largest class of citizens of our State, demand of the Legislature of Kansas the passage of the bill introduced by the Chairman of our Committee at the last session of our Legislature, with amendment suggested at this meeting, designated as Senate Bill No. 260, and entitled, ‘An act to prevent deception in the production and sale of milk, and in the manufacture and sale of butter and cheese, imitations thereof and substitutes therefor; to prescribe penalties for violations thereof; to create a State Dairy Commissioner, and to define his powers and duties, or some similar bill that will protect the dairy interests of the State against all imitations and adulterations of dairy products.’

“Resolved, that we ask that a sufficient appropriation be made by the Legislature to establish and equip a successful dairy school in connection with the Agricultural College at Manhattan.

“And be it further resolved, that appreciating the high character and services of the Kansas State Board of Agriculture in its successful endeavors to promote the agricultural, dairy, and kindred interests of this State, it is the sense of our Association that its control and conduct should continue as originally intended and so long maintained—a non-partisan, non-political body, devoted to the higher education and advancement of Kansas producers. That we, as individuals and as an Association, will lend our influence to prevent its being in any wise converted into a political machine, or a perquisite of any political party.”

Country Compared With City.

It is fashionable in cities to poke fun at farmers for their unpolished appearance. They are “hay-seeds.” Look deeper, however, to the character, the practical intelligence, and the moral worth, to find the stuff that good citizens and patriots are made of, and you will find them in larger proportion in the rural districts, according to the population, than in the cities.

In this connection there are some figures obtained from Col. A. Hogeland, President of the “Boys’ and Girls’ National Home and Employment Association,” of Lincoln, Nebraska: “In eleven cities, 1892, 13,000 police arrested 450,000 men, women, and children, at an expense of \$20,000,000; in an equal number of population among the farmers the same year there were not 500 arrests; of the 13,000 boys and girls in reform schools, 1890, 98 per cent went from cities, towns, and villages, and from one-third of the population, as two-thirds reside on farms.”

The “hayseed” talk may pass current for a joke, but earnest and patriotic men and women will always do honor to the honest worth and sturdy manhood which are to be found on the farm.—*Farm, Field, and Fireside.*

Patents—50 Years’ Experience.

Trade Marks, Designs, Copyrights, etc. Anyone sending a sketch and description may quickly ascertain, free, whether an invention is probably patentable. Communications strictly confidential. Oldest agents for securing patents in America. We have a Washington office. Patents taken through Munn & Co. receive special notice in the Scientific American, beautifully illustrated, largest circulation of any scientific journal, weekly, terms \$3.00 a year; \$1.50, six months. Specimen copies and hand-book on patents sent free. Address, Munn & Co., 361 Broadway, New York.

We try to conduct this paper so as to induce farmers to drop into a contemplative mood, occasionally, at least. We think as well work as we journey along, and it is the best thought that brings us the most money. “Head farming” was not so important a matter with the early pioneer who had the forest to subdue, and was satisfied with a sufficiency of products to make him just comfortable. With new and fertile lands it did not require much of an effort to accomplish this. New work and thought must go hand in hand if we accept present conditions and try to make the most of them.—*Agricultural Epitomist.*

Calendar.

1896-97.
Fall Term—September 10th to December 19th.
Winter Term—January 5th to March 27th.
Spring Term—March 30th to June 10th.
June 10th, Commencement.
1897-98.
Fall Term—September 9th to December 18th.

To School Officers.

The College Loan Commissioner has funds now to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioner and the State Agricultural College. Address C. R. Noe, Loan Commissioner, Leon, Kan.

GENERAL LOCAL NOTES.

Prof. Brown furnishes good orchestra music for the lecture course.

W. V. Hoffman, First-year, drops out of classes on account of ill health.

Tacy Stokes, Third-year, writes a dialect character sketch for last week's *Student's Herald*.

The regulator is again in its place in the President's office after a stay of about three months in the repair shop.

President Fairchild occupied the pulpit at the Baptist Church, yesterday morning, in the absence of the pastor, Rev. Mr. Riley, who was called to Topeka by the death of his brother.

Miss Elizabeth Frazier, a teacher in the Manhattan Schools several years ago, and well known in College circles for her efficient work, is elected Superintendent of Schools of Neosho County.

Mr. Willard D. Johnson, of the Hydrographic Division of the U. S. Geological Survey, made a brief call at the College on Saturday morning. He has spent several months in Western Kansas, Nebraska, and Oklahoma measuring the water supply.

Prof. Brown is engaged during his few spare minutes on copy for a new College Hymnal to take the place of the old book used for seven or eight years past. This old book is a good one, and most of the hymns contained therein will be reprinted in the new hymnal.

Final examinations will be held on Thursday and Friday, December 17th and 18th. There will be no military drill Friday morning. Chapel exercises will begin at 8:15, and examinations at 8:30, closing at 11:50, to give students time to catch the early afternoon trains.

Prof. Georgeson exhibited a fine lot of Cornish Indian Games at the Manhattan Poultry Show, last week. Of twenty birds shown, but two scored below 90 points, eighteen ranging between 90 and 94½. They were beautiful fowls, and well deserved the attention bestowed upon them by the visitors.

In a Chapel lecture, Saturday afternoon, Prof. Popenoe showed something of the value of the museum to the student. He held collecting to be an "amiable fad" well worth adopting, since it adds to the knowledge of him engaged in it as well as results in a public benefaction, to which facts all must agree. The condition of our zoological and geological cabinets was presented, and the necessity for more comprehensive collections clearly shown. Students were urged to assist in the development of these collections, and given valuable hints as to how the work should be done.

There is little to criticize and much to commend and admire in a college paper, controlled by students, conducted on such lines as laid down and adhered to by our *Student's Herald*. Witness the following editorial expression from a recent number: "A College paper, whether it is controlled by the students or faculty, should, above all things, be loyal to its institution. It should so far as possible avoid criticisms, especially in regard to college affairs. This can be done by not taking sides in personal squabbles, and by using a grain of charity toward things that seem at first distasteful."

GRADUATES AND FORMER STUDENTS.

Max Spalding, '96, attended the exhibition. He is teaching in Greenwood County.

W. S. Trader, student in 1892-3, was at College on Saturday. He is a book-keeper in Kansas City.

G. W. Fryhofer, '95, writes a letter of good cheer from Chicago. His address is 542 Monroe Street.

A. L. Frowe, Second-year in 1895-96, teacher of the Upper Cedar Creek school, attended the Alpha Beta exhibition.

E. A. Powell, '96, was a guest of the Alpha Betas, Saturday evening. He is employed on the home farm near Osage City.

F. A. Waugh, '91, is author of a very excellent bulletin, issued by the Vermont Station, upon Salad Plants and Plant Salads.

G. B. Rogers, student in 1886, was a visitor at the Alpha Beta annual. He expects to re-enter College next spring after several years of teaching.

J. C. Christensen, '94, left his duties at the home farm at Clarkson long enough to attend the Alpha Beta exhibition and spend Sunday with his brother, a post-graduate student.

Cards just received announce the marriage, at Washington, D. C., on December 1st, of Charles L. Marlatt, '84, to Miss Florence Lathrop Brown. Mr. Marlatt is first Assistant in the Entomological Division, Department of Agriculture, at Washington, where he has been employed since 1887. The bride

was until recently a resident of Boston, which she still calls her home. Mr. and Mrs. Marlatt will be at home, 1440 Massachusetts Avenue, January 7th.

Fred Jolly, class of '95, recently a compositor in the *Nationalist* office, has accepted a position as traveling salesman for the Queen City Soap Co., of Cincinnati, Ohio. He expects to go on the road in a few days.—*Manhattan Republic*.

Mr. B. S. LaShelle, student in 1892-3, was married, December 3rd, to Miss May Maxwell, at the home of the bride in Chepstow, Kansas. Mr. and Mrs. LaShelle visited College on Saturday while spending a few days with the groom's family. They will make their home on a farm near Pond Creek, Oklahoma.

College, 6; Fort Riley, 6.

The College team appeared on the gridiron Saturday afternoon for probably the last time this season in a return game with Ft. Riley. The greater weight of the visitors gave them a decided advantage, and it was only by a scratch that the College scored. In the first half, College kicked off, and in a few minutes the Soldiers had the ball over the center line, and by persistently bucking the center soon carried it dangerously near the goal. The home team made a determined stand at this point, and in holding their opponents, gained possession of the ball, and by a series of rushes forced it back to a point near the center line, beyond which they could not carry it, and soon lost it. During the remainder of the half the ball hovered about the twenty-five yard line, and when time was called neither side had scored.

In the second half, the visitors resumed their bucking tactics, on which they depended chiefly for gains, and slowly plowed their way toward goal, which was but ten yards away directly in front, when an unlucky fumble landed the ball at the feet of Posten, and he, with Menke at his heels, and the field in full cry, ran for the goal like a frightened rabbit. Now, Posten isn't a runner, but he excelled himself on this occasion, being literally pushed forward by the force of the hurricane of wild cheers which went up in his rear. Even with this stimulus he would have failed to reach the haven but for Menke's timely assistance in knocking off two fast men who would otherwise have piled the runner down. Both Posten and Menke received an ovation. Menke kicked goal. Score, 6 to 0. Play was resumed, and the soldiers, by hitting the line hard and fast, soon made a touch-down and kicked goal. Score, 6 to 6. The teams played a few minutes longer, and when time was called the advantage was with the College, they having the ball and being on their opponents' territory. Dr. Mayo acted as umpire.

Farmers' Institutes.

Institutes have been appointed and assignments made from the College as follows:—

Russell, Russell County, December 4th; Prof. Georgeson.

Oneida, Nemaha County, December 10th and 11th; Professors Hitchcock and Willard.

Nortonville, Jefferson County, December 17th and 18th; Prof. Olin and Mrs. Kedzie.

Oak Grange, Shawnee County, December 17th and 18th; Prof. Georgeson and Mrs. Winchup.

Hackney, Cowley County, December 29th and 30th; Professors Failyer and Mason.

Hiawatha, Brown County, December 30th; Dr. Mayo.

Overbrook, Osage County, January 21st and 22nd; Professors Mayo and White.

Wellsville, Franklin County, January 22nd and 23rd; Professors Georgeson and Will.

Peabody, Marion County, January 28th and 29th; Professors Walters and Mason.

Hutchison, Reno County, February 4th and 5th; Professors Hitchcock and Nichols.

Berryton, Shawnee County, February 11th and 12th; Secy. Graham and Mrs. Kedzie.

Haven, Reno County, February 11th and 12th; Professors Lantz and Popenoe.

K. S. A. C. Reunion.

All graduates and students of the College in attendance at the Kansas State Teachers' Association are requested to meet in the High School Building, Wednesday evening, Dec. 30th, at 9:30 o'clock. The program will consist of songs, an address by Prof. O. E. Olin, and others.

K. S. A. C. Headquarters will be in southeast lobby of Representative Hall. All graduates, students, and former students are requested to register there.

COLLEGE ORGANIZATIONS.

November 28th.

Hamiltons called to order by President Hall. S. J. Adams led the Society in prayer. The Marshal being absent, E. L. Hougham was chosen to fill this responsible position. Under the head of initiation of new members, I. C. VanOrsdol took the oath of allegiance. The program of the evening was opened by M. C. Adams with an oration, "Accomplishments of the Nineteenth Century." A. W. Greenfield discussed "The Treatment of the American Indian as Compared with that of the Negro. The debate on the question, "Resolved, That Curiosity will Lead a Man Farther than Necessity will Drive Him," was opened by E. L. Hougham, who showed the element of curiosity that led to the Egyptian investigations, to the exploration of the New World, and to the discovery of the great invention of the age. W. E. Hardy took up the negative and showed the necessity back of the movements that led to the great explorations and inventions. L. H. Thomas,

in somewhat more of a humorous strain, brought out some of the tendencies of man as a practical joker and the development of his traits out of curiosity. C. P. King responded in the same strain. At this juncture Merriken's Star Entertainers were introduced and asked to furnish the Society with music. The gentlemen treated us to a guitar and mandolin duet, responding to a hearty encore, with another of their masterly renditions. They next gave a duet on the piano and banjo; again they responded to the hearty encore, and showed that although they had been giving some masterly productions, they were not yet at their best. The Society could not let them off at this but, called for another. As was expected, this was the master-piece of all. In point of excellence they seemed to play on the ascending scale. After receiving the thanks of our Society the entertainers retired. E. L. Hougham now took up the interrupted debate and applied the curiosity solution to the interest manifested for our late entertainers. W. E. Hardy closed by summing up the argument. The Society decided the question in favor of the affirmative. J. F. Howe presented the news of the week. Messrs. Rogler and Heath gave a violin duet. They responded to the encore with a selection calculated to revive the lagging spirits of the members. Their spirits were so much revived that they insisted on another. After Critic's report, the Society adjourned for ten minutes to reconvene in executive session to consider Society matters. G. F. F.

November 28th.

Owing to the fact that the Star Entertainers were expected, every chair was occupied by Alpha Betas and visitors when President Shull called the Society to order. After singing, G. D. Hulett led in devotion. Miss Josephine Finley was installed as member of the board, there having been a vacancy. Mr. Stein and Mr. Bammes were initiated as members, and Miss Melvia Avery was elected but not initiated. The regular program of the day was then taken up. The first number was a humorous declamation, "The Inventor's Wife," by Laura Pritchard. This was followed by another selection, "The Model Dressmaker," Miss Cora Shull. The Society was next entertained with a vocal solo by Miss Edith Huntress with piano accompaniment by Gertrude Rhodes. "Should a Chair of Oratory and Elocution be Established at this College?" was argued on the affirmative by L. B. Jolly, and on the negative by C. R. Haywood. The question was then opened to general discussion and a lively debate ensued. The "Gleaner" was read by Mr. Forrest, its editor, J. M. Westgate, being absent. Some of the selections were, "Learning to Skate," "Cranks," "Thanksgiving," "Things Heard in the Class Room," and "Things Found in the Lost Drawer." It was a good edition and well read. Quite a number of former members were present, and on being invited by the President to address the Society, Misses St. John, Hoop, and Bertha Kimball responded with words of cheer and commendation. The arrival of the "Star Entertainers" was announced, and Secretary Graham introduced Messrs. Page and Worrill, who then entertained their audience with music. Mr. Page showed marvelous skill with the mandolin. He was accompanied by Mr. Worrill with the guitar. They responded to a hearty encore and the second selection was as heartily received as the first. The Society then extended them a vote of thanks. After recess followed a short business session, and in good time the order of adjournment was reached. E. L. W.

November 28th.

The Ionians certainly had their share of visitors about College on Saturday. The hall was filled to more than its seating capacity by Society members, strangers, and College friends. At about the usual time President Houghton's gavel caused quiet to reign. After the opening song, Miss Bertha Spohr led in devotion. Following the roll call, Miss Mary Ferris was elected a member of the Society. The program was opened with a piano solo by Miss Eva Gill, which the audience found very enjoyable. Miss Brady presented a short but very pleasing number of the Oracle. One of our visitors, Mr. Geo. Smith, kindly favored the Society with a vocal solo, Miss Lillie Eakin accompanying on the piano. Mr. Smith's always pleasing voice brought pleasant memories of days when he was often heard about the College. He was heartily encored, but did not respond. A new feature of the program was the extemporaneous story telling, with Miss Olson as Committee. Miss Vandivert, Mary Norton, and Minnie Spohr responded to the call with cute and interesting stories well told. Miss Edith Huntress with her vocal solo pleased her audience as she always does. The quotations from the Faculty, given in response to roll call, afforded much amusement, and closed the program. Before much business had been disposed of, Secretary Graham introduced to the Society, Mr. W. Eugene Page, the Mandolin Virtuoso, and his guitar accompanist, Mr. J. M. Worrel, who represented the Star Entertainers of the Lecture Course. And in their music the Society enjoyed a very rare treat. Their response to the encore only produced a desire for more, and only a sense of propriety prevented more being demanded. After giving quotations from Tennyson, the Society adjourned. M. A. C.

December 5th.

At the end of the fifth hour a number of girls assembled in room S for the regular meeting of the Y. W. C. A. The meeting was opened by singing two verses each of numbers 1 and 27, in Pentecostal Hymns. Miss Correll led in prayer. Miss Kneeland, leader, took for the scripture lesson a portion of the 22nd chapter of Proverbs. She called particular attention to verses one and eleven. Number 120 was sung; a few short prayers were offered, and the following new members were taken in: Ella Peck, Ina

Kneeland, Lizzie Crum, Amy Barrett, Minnie Reed, Sarah Davis, Nettie McLaren, Emma Marksheffle, Cora Carlton, Phoebe Smith, Bessie Orr, Miss Agnew, and Mary Davis. M. W.

The Alpha Beta Annual.

It is evident that the public, as well as the students, have learned to appreciate the efforts of the Alpha Betas in their annual exhibitions by the rush they made to secure tickets for the forthcoming event. Tickets to the number of 833 were issued, which number of persons just comfortably filled the Chapel. We are safe in saying that the decorations showed as much if not more skill and originality than any that has yet greeted the eyes of a waiting audience. The Overture was rendered by the College Orchestra.

President Fairchild led in devotion.

Mr. C. W. Shull, President of the Society, extended a hearty welcome to all. "We aim not merely to entertain, but also to instruct. We are trying each year to raise the standard of our work, and this evening we ask your prayerful attention and kindest criticism."

The male quartet, a medley, by Messrs. Amos Cottrell, Guy Hulett, Edward Shellenbaum, and Louis Jolley, combined the element of expectancy with pleasure, which gave a pleasing effect.

The address, "A Relic of the Dark Ages," by Mr. R. W. Clothier, was given in an able and pleasing manner, which was a credit to his Society. "We are living in an age of progress. In order to realize the truth of this statement, we have but to think of the swift-flying palace car which carries us across the continent in a few hours, and compare it with the slow, lumbering stage coach of a century ago, which required as many months to accomplish the same thing. Why, the truth of the statement is self-evident. When we look out upon the world, we read it in everything that comes within the field of vision. In order that civilization may make perfect progress, there must be a constant improvement in the intellectual, moral, material, and social condition of man which will effect all classes of society alike. There is a force now working in society which tends to sweep civilization back towards that dark oblivion from which it has apparently emerged. It manifests itself in the un-Christian doctrine of competition, and it molds the accepted view of the abstract right of man. While we are prone to grow enthusiastic in praise of the splendor of our nineteenth century civilization, we forget that we have retained with us a hideous relic of the dark ages—a spirit of individual selfishness which is the greatest foe to civilization that has ever existed. This same spirit worked in the civilization of Rome, it brought on a French revolution, and has fastened itself to modern civilization. Selfishness has been the one moving force in our great industrial development, and it is not labor alone that suffers by this spirit; for there is not an institution in the land which is unaffected by its influence. It has entered the churches, it has taken possession of the legislative halls, and we find it in the home where it instills itself into every new generation. Is there no escape from the influence of this unrighteous spirit? It remains for the present generation to answer the question. Away back in the centuries of the past, on the hill of Calvary, the most divine of all men was nailed to the cross for condemning the same spirit. Are we better than he? Let us live to proclaim to the world in the face of all the scientific reasoning of the past, that God's divine law of progress for man is not one of everlasting devotion to self, but is one of universal friendship, love, and peace."

An octette, composed of girls, represented to us in song the duties of "The Model College Girl."

The debate, which is always a prominent feature of an annual program, was argued on the affirmative by Mr. G. D. Hulett, while Miss Nora Reed presented the negative. The Society is to be commended on its tact in the solution of the question, "Should the State Endow University Extension?" which was so suitable for the occasion.

Mr. Hulett in his argument maintained that, "The question of State aid for the extension of university advantages to the unfavored class is one of comparative newness. Yet it is not impossible that in our own day we shall be called upon to answer that question. Within the borders of our own land are hungry thousands, hungry not for bread, but for intellectual sustenance. Young men and women are debarred by one cause or another from securing the mental training they so much desire. It is a trite saying that 'Where there's a will there's a way.' This is true only to a very limited extent when applied to securing a college education. It is a genius coupled with an indomitable will that accomplishes. In our present system of colleges and universities, it must be remembered that not only are there a comparatively few who are privileged to attend, but also that of those who do attend, a large proportion are sent by their parents whether the student has a deep-seated desire for culture or not. And what is the result? Manifestly, not educated men. It might be argued that this system will tend to decrease the attendance and influence of the college, but it will have the opposite effect. The college originates from the gift of an individual or a society. The State takes up the work, and we have our State universities, normals, and agricultural colleges. Now, why not place the next stone in the structure? The result will not, however, justify the State in dollars and cents. But education is not primarily a means of financial ad-



Fifteenth *
Annual *
Exhibition *
DECEMBER 5
1896

PROGRAM

OVERTURE	FLIESSENDE QUELLA	COLLEGE ORCHESTRA
INVOCATION, PRESIDENT FAIRCHILD		
MALE QUARTETTE	AMOS COTTRELL GUY D. HULETT	EDWARD SHELLENBAUM LOUIS B. JOLLY
ADDRESS	ROBERT WAITMAN CLOTHIER A RELIC OF THE DARK AGES	
OCTETTE	JOSEPHINE WILDER SOPHRONIA CHANNELL ETTA BARNARD LUCY COTTRELL	THE MODEL COLLEGE GIRL MINERVA BLACHLY MYRTLE MATHER ELSIE WATERS ADELAIDE WILDER
DEBATE	GUY HULETT	SHOULD THE STATE ENDOW UNIVERSITY EXTENSION NORA REED
MUSICAL ENTERTAINMENT	GYPSY CHORUS	
ORIGINAL STORY	A CHRISTMAS CAROL	JOSEPHINE FINLEY
SOCIETY PAPER	THE GLEANER	EDWARD SHELLENBAUM
QUINTETTE	ROBERT CLOTHIER MARIAN GILKERSON	STRINGED INSTRUMENTS JOSEPHINE WILDER MINERVA BLACHLY JOSEPHINE FINLEY
ORATION	OUR FLAG	ALICE MYRTLE SHOFER
VOCAL DUET	MARIAN GILKERSON	ACROSS THE STILL LAGOON ROBERT W. CLOTHIER
PLAY	THE WITCHES' DRILL	

vancement, but for individual growth. Shall we allow the shallow life of the community and State to predominate, when by a judicious expenditure of time and money, the intellectual life of the State might be given as great a stimulus as that which has been given it through the adoption of our public school system?"

Miss Reed in presenting the negative admitted that "the subject under discussion was comparatively new, and for this reason, if there were no others, the State should not be in haste to extend its aid. Suppose that the State should take up with every new fad of the popular mind, it would be but a few years till we would be a bankrupt nation. The university extension movement should first prove its right to exist, by its intrinsic worth before the State should presume to aid. Because this movement has been successful in a few centers, as Chicago and Philadelphia, this is no proof that it will therefore be successful all over our broad land. The demand for such an institution is not great enough at the present day to secure its establishment. Science, art, and mechanical skill have all increased at a very tardy pace. Society also advances under the same universal law. Education is likewise subject to the same rule, and the time for university extension as a State institution is far in the future. The State should make the best use of the funds at its disposal. It has been argued that the university extension centers will open the way for those persons to secure an education who would not otherwise obtain it. Those who lack the energy to secure an education under our present public school system would be the last to receive aid from such a source. The person who lacks the energy to secure an education under our present system would fail to do so, though an extension center be established at every cross road."

The Musical Entertainment, in the form of a "Gypsy Chorus," a new and pleasing feature of the program, was followed by "A Christmas Carol," by Miss Josephine Finley. The production was cleverly written. Through it ran a touch of pathos, which blended harmoniously with the trend of the tale.

The Society paper, "The Gleaner," was edited by Mr. Edward Shellenbaum, with the motto, "Honor is the reward of all Virtue." The Society evidently had here put forth its best efforts and the selections presented were chosen with a view to variety. "Behind the Footlights," "An Original Poem," "The Tale of a Turtle," "Progress of the Nineteenth Century," "The College Bell," "That Leap Year Party," followed by amusing notes on the party, and "A Student's Influence," are the titles of the contributions which securely held the attention of the audience.

The Quintette, on stringed instruments, was highly appreciated as shown in the hearty applause which greeted the players.

The oration delivered by Miss Alice Shofe on "Our Flag," inspired all with the necessity of loyalty to our Nation's banner. "As a man's character is shown in his face, so a nation's life is read in a banner unfurled. The colonial flags used by the English colonies founded in America, expressed the desire of the people for justice. Each red stripe on our flag is a story of suffering and bravery, written in blood on a sponge of white. Each star is a world in itself with its own history, if we could but read it. Go ask the student of history what that flag reveals to him. He will tell us that it has been the foremost object in the eyes of its countrymen from the time when it waved at the battle of Brandywine, and when at last she was at peace with other nations, slavery, that enemy of prosperity, threatened to ruin the principles upon which our State was founded. Again freedom prevailed, and instead of division, those

bars have reached out and drawn within a closer union, the North, South, East, and West. Our statesman, when he sees that flag, sees a nation possessing an influence felt in every zone on every side of the globe. He sees a nation that once sought mercy now giving it to suffering humanity. It is a nation verifying the promise given when our forefathers asked redress, 'In return for the recognition of liberty, we promise the blessing of a people who put their trust in God.' When we remember that old soldier says there is no tie stronger than that which bound their hearts while in the army, we can sympathize with the look of sadness that comes across his face as he thinks of those comrades who fell at the moment of victory. While we have power to act or speak, let us defend those noble principles established with this nation, 'that while the world shall stand, that banner shall wave o'er the land of the free and the home of the brave.'"

Miss Gilkerson and Mr. Clothier rendered a vocal duet, "Across the Still Lagoon," in a very creditable manner.

The last feature of the program was a play, "The Witches' Drill," which furnished much amusement. EMMA S. FINLEY.

The influence that one farmer has over another is frequently more than he is willing to acknowledge. Whether he is aware of it or not, he keeps an eye on what is going on about him and, like other people, is more or less influenced by what he sees. If his neighbor is raising a good crop, he is likely to compare his own. If he finds it better, he is likely to try to push his own to be just as good or a little better. If it is not so good as his own, then he is more likely to content himself that his is the best and let it go at that instead of trying to improve it.—E. E. Boquet, in *National Stockman*.

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A RATING TABLE FOR THE BLUE RIVER.

BY PROF. O. P. HOOD.

A RATING curve for the discharge of the Blue River at Manhattan may be of interest to some who have occasion to watch the rise and fall of this river.

The Blue drains an area of 7,040 square miles in Kansas and 2,420 square miles in Nebraska. Of all the tributaries of the Kansas, this is the most important, because draining a country whose rain-fall is considerably above that of the more western tributaries. There are many places where water power could be developed and where the river water could be profitably used for irrigation. At some time it will be important to know the habits of the river and the quantity of its normal discharge in the various seasons. On paper which has been ruled into squares, the vertical spaces may represent the height of the water in the river, and horizontal spaces may represent the discharge in cubic feet per second. The discharge being measured by instruments at some height, a point is placed on the ruled paper at a distance from the first vertical line representing the discharge and on that horizontal line representing the river height. Having plotted a number of measurements on the paper, a curve is drawn coinciding, more or less perfectly with all the points, the curve following more closely those measurements which are considered the most trustworthy. From this curve the discharges for intermediate river heights, which have not been measured, can be read with a reasonable degree of certainty as to their correctness. For the Blue River the curve is fairly well established from two feet to twelve feet. The discharges in cubic feet per second at each foot of gauge height at the Rocky Ford bridge are as follows:—

Gauge Height in feet.	2	3	4	5	6	7	8	9	10	11	12
Cu. ft. per sec. discharge.	214	408	662	1028	1508	2055	2698	3433	4268	5268	6478

July, 1895, was about as dry a month as the river is likely to see in the months when fields are usually irrigated. For seventeen days the river showed no evidence of a rain in its territory. During this time the discharge was about 550 cubic feet per second. This is equivalent to a rate of over 33,000 acre feet per month. Two thousand acres could have had three inches per day during the month, allowing a waste of half the available supply. There were three rains, showing a rise in the river which brought the total discharge for the month to 42,400 acre feet.

THE STATE DAIRY ASSOCIATION.

BY SECY. I. D. GRAHAM.

THE Tenth Annual Meeting of the State Dairy Association recently held at Abilene was a notable one in the history of this Association, and one of which it, as well as the State at large, may be proud. More than one hundred dairies and creameries were represented, and the attendance of others who were more or less interested in the proceedings was large.

Beginning, as it did, in the meeting of a handful of men,—but few of whom were practical dairymen,—in the parlor of one of the Topeka hotels, this Association finds itself at the end of the first decade of its history a strong organization of recognized power and ability in its own field of usefulness. In the early days, the advocate of the "gathered cream" system was a big man, and the "separator" man a wild-eyed theorist unworthy of being taken seriously. Now they have changed places, and the community has been benefited.

At the last meeting, the exhibit of dairy products and appliances was large and very instructive, and the interest of the members and visitors great; but that which made of this meeting the success that it proved was the high quality and character of the papers presented by both the local members and the invited visitors, some of whom enjoy a national reputation.

If one may distinguish among papers where all were so good, it might be to refer to some of the papers presented by the visiting experts from outside our State lines. Among these, the very excellent address of Prof. Hacker of the Dairy Department of the Minnesota Experiment Station doubtless proved an eye-opener to many present.

Among his many good points we may note his preference for individual merit in the butter-making cow as of vastly more importance than breed. A cow that is of spare habit, with lean neck and head, great depth of body, good circulation and respiration, and

standing low on her legs, seems to approximate his ideal type. To be a good butter cow, she must be one that simply will not get fat. The good butter cow should be small in size for the one reason that a large animal requires a greater maintenance ration and so costs more to keep. And then, if she has any tendency to lay on fat, she robs the pail by requiring still more maintenance for the added weight.

To illustrate, according to the Professor's estimate, it requires one pound of digestible nutrients per day for each one hundred pounds of cow. If, therefore, a cow weighs eight hundred pounds, her daily food must contain at least eight pounds of digestible nutrients to simply keep her alive and in health. If she weigh 1,200 pounds, she will require twelve pounds, or one-half more food for the same purpose, none of which returns any profit in the pail. With these facts in mind, it is an easy matter to compute the amount of food the cow will consume over and above the maintenance ration, and the return for this she makes in the flow of milk.

In determining the cost of a pound of butter, the Professor obtained some surprising results. Beginning with a cow that did not quite meet his requirements as to type, and which charged him something more than seventeen cents per pound for butter, he continued his experiments until he found one that charged but a small fraction more than four cents per pound for butter.

His cows are fed but twice per day, and always go to their stalls with an appetite. They are always protected from the weather and kept in the most comfortable condition possible.

The dairy cow is a highly artificial thing, and must not be allowed to relapse into a "state of nature," if her qualities are to be preserved. For this reason the dairy calves are allowed food from the udder but once; then the whole milk with its natural warmth for one week. After this they have a mixture of whole and separator milk in varying qualities until turned to grass in the spring.

Did space allow, a brief review of other valuable papers would be interesting, and those who attended the meeting will wait, but impatiently, for them to appear in print.

The Association wound up the good work of the session by taking steps toward securing the needed legislation for the establishment of a dairy school in connection with the Agricultural College. This is a pressing necessity, and must come.

A JAVANESE TEA PLANTATION.

BY DAVID G. FAIRCHILD, '88.

[Excerpts from a Private Letter.]

I HAVE just come in from an excursion to one of the great tea plantations of Java. As the difficulties of travel here are great, every planter has become a sort of hotel keeper—only no charges are made. I stayed in a plantation house four days, and I assure you it was a most novel experience.

America is noted for its large plantations; but I don't know of any culture of a perennial plant there which covers over 21,000 acres, or of a single farm of 35,000 acres, employing 1500 men regularly, and from 1000 to 2000 women as tea pickers. It is simply a stupendous plantation, and a walk through it is like an ocean voyage—the horizon is bounded by tea plants, and the rolling hillsides are covered with an even green color like immense billows. Words fail to describe the beauties of this mountain scenery or the charm of its climate after six months spent here at a lower elevation. The farm is spread out on the saddle between two immense volcanoes, at an altitude of 1600 feet. The morning temperature is about 60° to 70° F., and the rain-fall is less than at this altitude of 800 feet. It is claimed that this higher altitude, from one thousand to two thousand feet, has the healthiest climate in the island; for it is neither too cold and cloudy nor too sunny and dry, but year in, year out, has a genuine May weather in the morning and June weather after dinner.

But I suppose your interest will center in questions of the management of such an immense estate. Where labor costs only from 6 to 8 cents a day per man, it is not to be expected that much labor-saving machinery will be introduced; the driers and rollers and selectors, or graders, being essentially simple machines, though quite effective. There are two kinds or sorts of tea grown here—the China tea and Assam tea. The former is a small tree, when not pruned growing to twelve or fourteen feet, but when pruned, as for the plantation, scarcely two to two

and one-half feet high. It yields smaller quantities and an inferior quality of tea to the Assam tea plant, which is much larger when pruned, often three and one-half to four feet high. The trees are pruned to make the plant form a broad, flat top, and a cross-section of a well-proportioned Assam tree would be almost an equilateral triangle. It is the young, tender shoots which arise from over this flat top which are picked and furnish the tea. In general, the young twig when picked has only three leaves unfolded. In certain special cases, a small portion of the twig is plucked. The plucking is done by girls and women exclusively. Children of eight years often show great proficiency in snipping off the twigs between thumb and forefinger.

At the drying factory, in the smooth gravel plot in front, long lines of girls and women with their packages of tea file in. They spread the tea out deftly on large, round bamboo mats in a thin layer to wilt in the strong sunlight. When the turgescence has disappeared from the leaves, they are poured into a hopper which feeds a narrow space between two horizontal metal plates in slow rotation in opposite directions. The principle of these rolling machines must have been taken from the simple, almost instinctive, movement of rolling any thin substance between the palms of the hands, for it produces the same result and resembles it most strikingly. As the tea falls from this roller, it is stacked in trays for an hour or two to "ferment," or as Dr. Van Romburg claims, to oxidize.

As there is no bacterium connected with the process, it is not admissible to use the term fermentation. This process produces, through an oxidation of one of the aetherial oils in the tea leaves, the aromatic compound which gives to the tea its aroma. This aromatic compound, or tea oil, has already been separated from the tea and analyzed, and will no doubt some day be produced synthetically.

Upon the length of time which the tea is allowed to oxidize, depends in a measure the quality of the tea, and the sooner the leaves can be dried after "fermentation" the better the quality of tea. The market value of tea, however, is quite another thing, and depends largely upon the percentage of tips in it. These tips are composed of the very youngest still unfolded leaves, and are much more thickly beset with gold brown hairs, giving them a beautiful glossy appearance. The so-called gold Peko (which brought such fabulous prices on the London market, and as every one supposes these prices seem to have been made by those interested in Ceylon plantations) is made by selection from ordinary tea. A flannel cloth is pressed upon the dry tea and then lifted, when many of the very youngest of the tips, because covered with hairs, stick to it and may easily be shaken upon a separate tray.

The tea, after oxidation, is put at once through the drier, which resembles in appearance a threshing machine, and in principle is simply an oven with continually changing air current. A current of hot air, 200° centigrade, is conducted over a slowly moving sieve, on which the tea is spread out. After forty minutes passage twice through the machine, the tea is considered dry and is sorted by means of a slanted revolving drum with perforations of increasing size. A few minutes stay in the sunlight the following day to drive off any moisture gathered during sorting and cleaning by the women, and the tea is packed in lead-lined receivers, ready to be shipped in the well-known tea chests, which are also made on the place.

The tea plant reaches a very old age, of course, and one is often surprised to hear that this or that portion of the estate is fifty or sixty years old. The methods of culture are more those of a garden than of a farm, scrupulously clean and well worked, all by hand, no plows or harrows or cultivators being used. The soil is a brick-red, and seems to be as mellow and easy of manipulation as that of a potting bench. Chemical manures are little used; in fact, the concurrence has been so slight as yet that this aid to the production of larger leaf surface has not been thoroughly exploited, and yet it would seem one of the most fertile fields for the investigation of the effect of nitrogenous fertilizers.

But of all the interesting things which strike the eye of a horticulturist must be the fact that every tree is a seedling. The look of heterogeneity presented by a tea field is very striking, especially to one accustomed to plantations of grafted nursery stock. The difficulties in the way of grafting and budding are not insurmountable, I am told, and I even saw one or two budded trees on the place. What a wide margin for improvement is left, should the tea market become glutted, is shown more clearly by this fact than by anything else connected with the business of tea manufacture. It would seem to me a most delight-

ful task to produce by selection a variety of Assam tea, with leaves as large as a chestnut leaf and as thin and aromatic as the London fancier could wish. It is probable that I have not seen enough to realize the difficulties of the problem, but I believe such things are possible.

BUITEN ZORG, JAVA, Oct. 25, 1896.

The Home and Fireside.

Even as the sunbeam is composed of minute rays, the happy home life must be constituted of little tendernesses, kind looks, sweet laughter, gentle words, loving counsels. There is nothing on earth so beautiful as the household on which Christian love forever smiles, and where religion walks a counselor and a friend. Home is a place of rest, where the spirit basks in the peaceful delights of domestic love. Home should be made so truly home that the weary, tempted heart could turn toward it anywhere on the dusty highway of life, and receive light and strength.

Should some one ask me to conduct him to one of the happiest homes in the land, I should not take him to some superb edifice in a bustling, noisy city; but should wend my way to some quiet farm house, presided over by a thrifty, frugal farmer, whose heart is in his work—where the eye may be delighted by looking upon the growing grain, the cattle grazing upon many a hill, and flowers which bloom in profusion. There, to my mind, are to be found the conditions most conducive to health, peace, tranquility, and happiness. In the words of Goldthwaite, "Ever remember that, for health and substantial wealth, for rare opportunities for self improvement, for long life and real independence, farming is the best business in the world." The happiest homes in the world are those where each has a work to perform, and all go at it cheerfully.

On the farm each member can have a share in helping to fill the family treasury. Depend upon it, if you would keep your sons from running away into perilous centers, you must make farm life attractive. You can do this by abating the task of farming, by raising maximum crops at maximum profits, by surrounding your work with the exhilaration of intellectual progress. You must elevate the whole spirit of your vocation. Lead your sons to properly estimate the high and honorable position of the farmer. Delightful firesides and friendly circles are every day abandoned by our youth for the dangerous excitement and vicissitudes of city life. Are not the fathers responsible, to a great extent, for this sad state of affairs? Have some system about your farming. You can't expect your boy to become interested in such slipshod work as is noticeable on a great many farms. If he sees you work hard all the year and come out in debt, it is a poor encouragement for him to stay on the farm. If you want to keep him there, quit grumbling and farm intelligently. Take some good agricultural paper, read it yourself, and encourage your son to read it. Study new methods, let him experiment some, and get him interested. Let him have his own horse, and a piece of land to cultivate, and all he makes on it.

Then the mother and daughters have something to employ their leisure moments—something that will take them into the air and sunshine. What woman does not delight in the care of poultry? And it is not only an interesting, attractive occupation, it is a paying business. It is a mistaken idea that it requires a great amount of capital to begin. We could cite you many instances of women engaged in this branch of industry accumulating quite a snug little sum in a very short time. What would be nicer for the daughter than a strawberry bed? This fruit always commands a good price. Small fortunes have been made in a remarkably short period by strawberry raisers. Bee culture yields handsome returns, and is a nice employment for women and children. I might mention other occupations, such as dairying, etc., but in a happy, prosperous, self-sustaining home all find some work to do.

And when the family, having been engaged in healthful exercise during the day, gather around the fireside in the evening there is peace and happiness pictured on every face, of which city residents cannot boast. Of course there are homes in our cities, but it is the exception, and not the rule. There are so many things to allure one—especially the young people—away from home. Too often the care-worn father is looked to as the only means of support, and it is seldom that the family have a quiet evening to themselves. Though they may enjoy the fascinations of society, they will never know the peace and tranquility felt by the occupants of a quiet farm house.

Parents, if you would keep the faces of your children bright and smiling, if you would have them remain at home in the evening, and delight to return to the old place after they have homes of their own, you must make home attractive. Music is of inestimable value as a home enjoyment. We know of no more pleasing and interesting spectacle than that of brothers and sisters playing and singing together, while the parents sit delighted by. Parents should not fail to consider the great value of music. Buy a good instrument, and teach your family to sing and play; then they can produce sufficient amusement at home, and your sons will not think of looking elsewhere for it, and thus often be led into dens of vice and immorality.

Let parents talk much and talk well at home. It is better to instruct children and make them happy at home than it is to charm strangers or amuse friends. A silent house is a dull place for young people—a place from which they will escape if possible. There are many innocent games in which father and mother could join, and thus pleasantly while away the long

winter evening. Increase fireside pleasures, and you will increase the happiness of your family.

There can be no true happiness where love has no place. It is the first requisite of a happy home. Love expels all that is mean and base; bids us think great thoughts, do great deeds.

A business understanding between husband and wife concerning the household treasury is necessary to a happy, prosperous home. The neglect of this has caused much unpleasantness, to say the least. The household expenditures must be governed by the income. No family can long be happy who live beyond their income. Teach your children by example to be contented with their lot. Contentment is the utmost felicity a man is capable of in this world, and the maintaining of such an uninterrupted spirit of tranquility is the very crown of wisdom. Wealth, fame and power are not the only sources of enjoyment, but limited fortune, obscurity and insignificance are compatible with and have proved most friendly to happiness. Writers of every age have endeavored to show that pleasures are in us, and not in the object offered for our amusement. The fountain of content must spring up in the mind. Man sees goodness around him in proportion to the goodness that is within him. What a glorious world this would be if all its inhabitants could say with Shakespeare's shepherd, "Sir, I am a true laborer; I earn that I wear; owe no man hate; envy no man's happiness; glad of other man's good; contented with my farm."

Remember, again, our success and happiness in life bears a direct proportion to the exertions we make. To industry, guided by reasonable intelligence and economy, every family can look with certainty as an unfailing source of temporal prosperity. Honorable industry always travels the same road with enjoyment.

A happy home must necessarily be a well governed home. Unlimited good humor is one of the chief requisites of all good government, whether of one's self, a nursery, or a country. Be cheerful, for it is the only happy life. We commend that sweet cheerfulness by which a good and sensible woman diffuses the oil of gladness throughout the home circle. Cultivate cheerfulness. Teach those around you to discern the silver lining of the darkest cloud.

Daughters, remember your first duty is to make mother happy. Shun all that would pain her. Lighten the burden of housekeeping by assuming part of the responsibility, and more of the work. Strive to beautify your home. Make everything look as cheerful as possible. Flowers have an ennobling influence in the home, and there are many varieties that require little care, and you will be amply repaid for your trouble.

The spirit of congenial friendship must link the hearts of the inmates of a dwelling, or it is not home. Oh, that parents were brought to realize that the characters of their children are formed under the moulding powers of home! Who does not feel the influence of home upon all his habits of life? Our life abroad is but a reflex of what it is at home. Let us strive with increasing effort to make our home happier. Let it be reality, and not mere poetry to speak of

"My own dear quiet home,
The Eden of my heart."

—Mrs. G. A. Marsh, in *Southern Cultivator*.

What Is Liberal Education?

A speaker at a farmers' meeting in Ohio answered the above question in an admirable paper, in the course of which he said: "All forms of education embrace the culture of the man, physical, intellectual, moral, and religious. Each age has had its own ideas of what an education is. It has been a struggle for our colleges and our universities to get away from the domination of the classics as the sole course of training and culture. The classical idea of education exalts the learner above the doer. A man who has a really liberal education 'is not only learned, but trained and disciplined for work.' He may or may not have studied the classics, but these have not been his chief study. He must have studied the sciences, and the book of nature. He must have studied his fellow men and the laws that govern human society. The years in school are but preparing the way for a liberal education."

"Huxley described the man who is liberally educated as one 'who has been so trained in youth that his body is the ready servant of his will, and does with ease and pleasure all the work that, as a mechanism, it is capable of; whose intellect is a clear, cold, logic-engine with all its parts of equal strength and in smooth working order, ready, like a steam engine, to be turned to do any kind of work, and spin gossamers as well as forge the anchors of the mind; whose mind is stored with a knowledge of the great and fundamental truths of nature and of the laws of her operations; one who, no stunted ascetic, is full of life and fire, but whose passions are trained to come to a halt by a vigorous will, the servant of a tender conscience; who has learned to love all beauty, whether of nature or art; to hate all villainess, and to respect others as himself. Such a one, and no other, has had a liberal education.'"

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Calendar.

1896-97.
Fall Term—September 10th to December 19th.
Winter Term—January 5th to March 27th.
Spring Term—March 30th to June 10th.
June 10th, Commencement.
1897-98.
Fall Term—September 9th to December 18th

To School Officers.

The College Loan Commissioner has funds now to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioner and the State Agricultural College. Address C. R. Noe, Loan Commissioner, Leon, Kan.

GENERAL LOCAL NOTES.

The First-years held a pleasant party on Monday evening at the home of Mr. and Mrs. Sexton.

Prof. Olin was called to Eldorado yesterday, to attend the funeral of a younger brother, who died at Little Rock.

Prof. Brown thinks of moving from the suburbs to the Adams house, corner of Houston Street and Juliette Avenue.

The Ionian Society held no session Saturday out of respect to their President, Miss Houghton, whose mother died on Wednesday.

President Fairchild would have attended the irrigation convention at Phoenix, Arizona, this week, but for the illness of Mrs. Fairchild.

Several cases of sickness are reported, among them being Dr. Mayo's little son, Donald; Mrs. Fairchild, of pharyngitis, and Prof. Mason and Secy. Graham of grip.

The Manhattan Horticultural Society will meet Thursday afternoon, in Horticultural Hall. Prof. Georgeson will speak of the Ozark region as a fruit country.

Professors Hitchcock and Willard report a poorly attended institute at Oneida, the weather being so fine that the farmers preferred physical to mental exercise.

Professors Popenoe and Mason and Mr. Sears attended the meeting of the State Horticultural Society, at Topeka, last week, the first two having a place on the program.

The railroad companies have granted an extension of holiday rates to students, who, with proper credentials, will be enabled to purchase tickets at reduced rates on Saturday, December 19th.

The *Forester*, an illustrated journal devoted to forestry, reaches our table this week. It is edited by John Gifford, of Mays Landing, N. J., and is the official organ of the New Jersey Forestry Association. Subscription price, 50 cents.

Lee Foo Sing (translated, Fred Mark Turnbull) visited the College on Thursday. He lectured at the Baptist Church on Friday evening. Ah Sing has been a resident of the United States for sixteen years, the last three of which he has spent at Ottawa University. He will soon go to Chicago University to enter Moody's Bible Class, that he may better fit himself for missionary work in China, to which country he plans an early return.

The forestry museum is the richer for about 500 specimens of woods indigenous to the coast line of Southern Virginia. These specimens were collected by Prof. Mason in a hurried visit to the region after the American Association of Agricultural Colleges and Experiment Station, to which he was a delegate from our College, had adjourned; and many of them are from the immediate vicinity of the battle-field of Williamsburg, thus giving them a value to the historian as well as to the student of forestry.

The Museum is again indebted to the kindly remembrance of Capt. E. B. Bolton, now at Fort Ringgold, Texas, on the lower Rio Grande. This time Capt. Bolton adds to our collections excellent skins of the scissor-tail fly-catcher, male and female, the green jay, male and female, Audubon's oriole, male, and golden-fronted woodpecker, male. The last three species are characteristic of the extreme southwest, varying thence through Mexico, and hence are of more than usual interest. All are most welcome additions.

Miss Harper and Miss Rupp, as representatives of the Ladies' Faculty Club, entertained the Faculty and their wives on Friday evening at the home of the former. The affair was delightfully informal. After an hour of small talk, larded with a fair proportion of the larger sort, the hostesses provided their guests with broad shingles on each of which was a tiny candle, a small cracker, a paper boat containing salt, and a wooden paddle,—the significance of all of which the reader is left to guess. Later, a more substantial repast was provided, and the guests departed at ten o'clock to dream sweet dreams after a diet of mince pie and strong coffee.

The spirit of industry which obtains among our students, both under-graduate and post-graduate, is incomprehensible to the average inmate of a classical institution. This was aptly illustrated during the recent State Convention of the Young Women's Christian Association held in town. The delegates, about sixty-five in number, spent one entire forenoon at the College, and the halls echoed with their exclamations of surprise and delight at the extent of the College and the great number of young men and young women who availed themselves of the opportunity offered for a practical education. The young ladies showed special interest in the Cooking Department where lunch was served to them—a lunch prepared and served by the students in household science,

many of whom had a place on the program of the Convention. The lunch was so well prepared and so daintily served that the visitors were compelled to admiration of a system which makes it possible for a young woman to become an adept in household science as well as in literary work, and to be equally efficient as dishwasher or musical leader and soloist!

The Closing Chapel Exercise.

To the Sixth Division of the Third-year Class belongs the distinction of presenting the last public exercise in Chapel. The printed program was more elaborate than usual, and bore appropriate holiday greetings. It is reproduced in full:—



THIRD-YEAR CLASS

SIXTH DIVISION

SATURDAY, DECEMBER 12.

BAND

JENNETTE CARPENTER - -

Past Events Commemorated

HENRY A. MARTIN - -

Before the Chicago Convention

ALICE M. MELTON - -

The Beauty of the Sky

Violin Solo—"Shot and Shell"
BEN BROWN

MOLLIE M. MINIS - -

Wait

SCHUYLER NICHOLS - -

The Drift of Life

HATTIE G. NICHOLS - -

Local Traditions of Spain

Male Quartet—"We're Homeward Bound"
J. H. BOWER T. E. THOMPSON
E. B. PATTEN O. R. SMITH

JUNIE L. PARKS - -

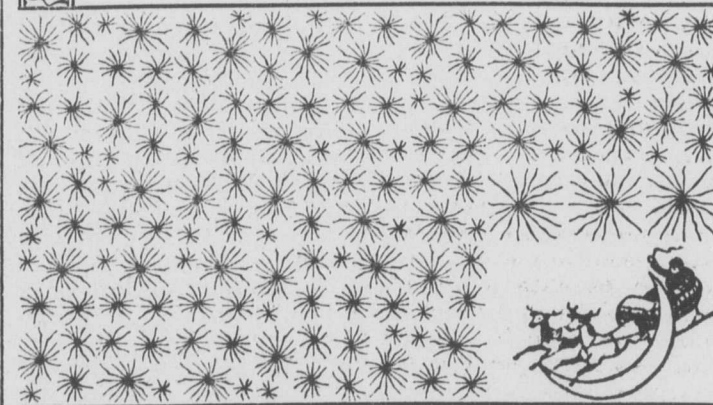
Swiss Scenery

JOHN M. PIERCE - -

Pyramids Not All Egyptian

C. JEANETTE PERRY - -

Wanted--A New Nose



GRADUATES AND FORMER STUDENTS.

H. N. Rhodes, '96, having resigned his place as teacher in the Upper Ogden school, plans post-graduate work for the winter term.

Miss Effie Gilstrap, '92, one of the editors of the *Chandler (Ok.) News*, was married, December 9th, to Mr. David N. Frazier of Chandler.

J. F. Odle, '94, Writes from Kalamazoo, Mich., where he is foreman of a dairy farm, that he contemplates seeking employment in another line.

A. Dickens, '93, "bobs up serenely," after being defeated in his race for Superintendent of Rice County, and philosophically comments thereon in this wise: "Defeat is not nearly so bitter as some seem to suppose. It is part of the game one must consider when he begins; and I have the satisfaction of going down in good company. I learned a good many things last fall that I would never have learned in any other way. Whether the education is worth the tuition fee, remains to be proved."

Laura G. Day, '93, Instructor in Household Economy in the Stout Manual Training School at Menominee, Wis., will address Women's Clubs at Madison and Milwaukee, next week, and will spend the holidays at Chicago University with Gertrude Coburn, '91. Professor of Household Economy in Iowa Agricultural College at Ames, who is pursuing special studies there. It is quite probable that they will be joined by Ruth Stokes, '92, Instructor in Household Economy in the Toledo Schools, and Jane Tunnell,

'89, Assistant to the Dean of Mt. Carmel (Ills.) Seminary, a preparatory school to the University.

S. C. Harner, '90, with his wife, visited the College the first of the week. He is manager of the home farm of 400 acres near Lasita.

Mrs. Mayme Houghton-Brock, '91, and Winifred Houghton, Fourth-year, mourn the loss of their mother, who died on Wednesday, December 9th, following a surgical operation. The Fourth-year Class attended the funeral in a body on Friday.

Geo. M. Dick, of Ellsworth, Second-year in 1893-4, was run over and killed by a freight train in the Union Pacific yards at Junction City, Wednesday night. He was employed by the company as extra brakeman, and had been at work about two months.

F. A. Waugh, 91, Professor of Horticulture in Vermont University at Burlington, is a candidate for the Ph. D. degree in Horticulture at Cornell University. He says in a recent letter: "We had a large horticultural meeting in Burlington, last week, the first in the history of Vermont. It was brought about almost altogether by the efforts of the Experiment Station. I have thus the strange experience of coming east from Kansas to be the first Secretary of the Vermont Horticultural Society."

Farmers' Institutes.

Institutes have been appointed and assignments made from the College as follows:—

Nortonville, Jefferson County, December 17th and 18th; Prof. Olin and Mrs. Kedzie.

Oak Grange, Shawnee County, December 17th and 18th; Prof. Georgeson and Mrs. Winchip.

Hackney, Cowley County, December 29th and 30th; Professors Failyer and Mason.

Hiawatha, Brown County, December 30th; Dr. Mayo.

Overbrook, Osage County, January 21st and 22nd; Professors Mayo and White.

Wellsville, Franklin County, January 22nd and 23rd; Professors Georgeson and Will.

Peabody, Marion County, January 28th and 29th; Professors Walters and Mason.

Hutchinson, Reno County, February 4th and 5th; Professors Hitchcock and Nichols.

Berryton, Shawnee County, February 11th and 12th; Secy. Graham and Mrs. Kedzie.

Haven, Reno County, February 11th and 12th; Professors Lantz and Popenoe.

Stockton, Rooks County, January 4th and 5th; Professors Hood and Burtis.

Pleasanton, Linn County, January 7th and 8th; Professors Walters and Georgeson.

To K. S. A. C. Students and Graduates.

Our Annual State Teachers' Association brings many Agricultural College students together each year, and a reunion, from time to time, has for years been our custom. Last year a formal organization was effected and arrangements made for a permanent Reunion Association at this time.

Wednesday evening, December 30th, has been selected for this year's reunion. It will be held in Topeka's High School Building at 9:30 P. M., being after the Association lecture. The Secretary, Miss Elsie Crump, has prepared some excellent music for us. Prof. O. E. Olin will give an address, followed by a general roll-call talk. Let every K. S. A. C. student attending the State Teachers' Association be with us and help make it a joyful occasion and a full reunion. Headquarters for enrolling will be in the cloak lobby, southeast corner of Representative Hall, Capitol Building. The President of the Reunion Association will have charge Tuesday night, December 29th; the Secretary, Wednesday night; the Class of '97, Thursday night.

Let every graduate and student in Topeka at that time enroll at headquarters and attend our roll-call reunion on Wednesday, the 30th. **ELSIE CRUMP,**
Secy. Reunion Association.

Horticultural Notes.

On his recent trip to North Carolina, Prof. Mason secured a number of fine wood specimens which will make a valuable addition to the Department's collection of woods. Among them is *Pinus taeda*; one of oak, *Quercus heterophylla*; a specimen of flowering dogwood, *Cornus Florida*, 5½ inches in diameter; one of holly 6 inches in diameter, and a very fine specimen of tulip tree, *Liriodendron tulipifera*, apparently about thirteen years old and 10 inches in diameter. He also secured a Martha Washington rose and an English ivy from Mt. Vernon, besides some cuttings of hydrangea and other shrubs.

Our entire propagating house has been set to lettuce, and it really makes quite a pretty sight, being now nearly ready for market. Black Seeded Simpson, Denver Market, and Grand Rapids Forcing are varieties used. The first named makes the largest plants, but is not quite so good in color nor so attractive in appearance as the other two.

All canes have been removed from the old raspberry bed with the intention of beginning as soon as the new shoots appear in the spring to spray systematically with Bordeaux mixture in the hope of eradicating the anthracnose which was last year so prevalent in the patch as to preclude the possibility of its yielding a profitable crop.

A large number of tree seeds have been received from the Division of Forestry at Washington and stored in sand for planting next spring. The seeds include two species of ash, black walnut, honey locust, box elder, hackberry, bur oak, and chestnut

oak, and are from a number of different States, the intention being to note the difference, if any, in the trees grown from the different lots of seed. This is a part of a large co-operative experiment which the Division of Forestry is conducting.

There seems to be a marked difference in the extent to which the different roses in the rose house are affected with mildew. Some varieties, such as *Perle des Jardines* and *Sunset*, are almost entirely free from it, while *Meteor*, *Bride*, and *Bridesmaid*, in the order named, are quite badly affected.

The Department has received seeds and cuttings of two white wild grapes, *Vitis Riparia*. One lot comes from Linn County, and is furnished by Mr. T. W. Morse, and the other is from Marshall County, and is donated by Mr. E. O. Farrar. The fruit is not really white, but very light colored, in marked contrast to the type of this grape, and the two samples are very similar.

The recent cold snap emphasized the fact that anything which was to be given winter protection should be covered at once. Accordingly, the tender sorts of grapes have been covered with earth, first bending the canes as near the ground as possible, and the strawberry bed has been given a light covering of hay. This is all that is necessary, just enough hay so that the strawberry plants cannot be seen through it, as the object of all protection is not so much to protect the plant from the cold as to prevent sudden changes in the temperature and alternate freezing and thawing. In order to test this question of the change in temperature of the air about protected plants as compared with the temperature of the outside air, a record was kept last winter covering about three months. In the case of grape vines covered with earth, a long soil thermometer was placed so that the bulb was about the depth of the most of the canes, and another thermometer was fastened to a stake near by, its bulb being freely exposed to the air. It was found that the buried thermometer varied hardly a degree, even when the outside air gave a daily range of from 20° and 30°. In the event of a long cold or warm spell, the inside thermometer would gradually go down or up, as the case might be, but sudden changes had no appreciable effect. Other tests gave similar results, though of course in the case of plants covered with straw the difference was less marked.

F. C. SEARS.

Notes From the Farm.

The present steer-feeding experiment is attracting unusual attention. As stated in the *INDUSTRIALIST* several weeks ago, the experiment consists of three lots of five steers each. Lot I is fed on corn meal, Lot II on Red Kaffir corn meal, and Lot III on White Kaffir corn meal. The experiment proper has been running but thirty-five days, hardly long enough to make any comparison between lots. In order to answer the question many times asked, "Which feed is giving the best results?" we give the results up to December 8th. For this period of thirty-five days, Lot I has gained 457 pounds, Lot II 482, Lot III 604, or an average daily gain per head of 2.61 pounds for Lot I, 2.75 pounds for Lot II, and 3.75 pounds for Lot III. For so short a period it is not proper to predict how much of these differences is due to the quality of the feeds and how much is due to individuality of the steers. All the lots have been feeding very regularly, and receiving the same amount of grain. In the steer-feeding experiments heretofore, each lot had been fed according to its appetite. A change will be made this year, and the same amount of grain will be fed to each lot. At present each lot is receiving one hundred pounds a day, and this will be increased little, if any. The work of obtaining the amount of grain passing through in the manure of each lot is giving interesting and valuable results. This investigation has not ended as yet, but from data obtained so far we have the following: Of the grain fed Lot I, 5½ per cent passes through undigested; of that fed Lot II, 12.8 per cent; of that fed Lot III, 13.8 per cent. It is not likely that these figures will be altered materially when the work ends, as they correspond with data from previous work of this kind. All other grain is ground very fine for feeding. In a trial to see just how fine the meal was ground, 77.75 per cent passed through a sieve with a mesh one-sixteenth of an inch square, and about half of this passed through a sieve with a mesh one-twenty-eighth of an inch square, and quite a portion of this was fine flour. Our Kelly duplex mill grinds about thirty bushels of this per hour. The recent cold spell made quite a check on the gains of all the lots. Up to November 24th, a period of twenty-one days, the fifteen head had made an average daily gain per head of 4.07 pounds. For the fourteen days succeeding the 24th, they have made a daily gain per head of 1.14 pounds.

The work of testing the College herd for tuberculosis with the tuberculin test is under way. The Veterinary Department is conducting the operations, and all results will be published in due time.

Some live-stock has been sold lately. Ex-Regent Secret of this county, J. W. VanOrsdal of Waterville, and J. Nelson of Scandia purchased Poland boars. Otto Buchrein of Winklers Mill selected a couple of our fine Berkshire boars at \$35.00. Mr. Buchrein has from five to six hundred hogs on his place every year, and keeps nothing but the best. He is well acquainted with the stock of the best breeders of the State. Three Short-horn heifers were sold to the County Poor Farm of Dickinson County. One of the young Shropshire rams goes to head the flock of Representative Knipe, a neighbor of the College.

The recent cold spell has given the wheat quite a wintery appearance for this time of the year, and

there will be but little growth now until spring opens. All the experiments are in fine condition. The cool weather of October and November did not produce a rank top growth as sometimes occurs, but the plants tillered well and made an excellent root growth.

F. C. BURTIS.

COLLEGE ORGANIZATIONS.

Student Editors.—W. B. Chase, Emma Finley, E. Shellenbaum. Y. M. C. A.—President, S. J. Adams, '98; Vice-President, G. D. Hulett, '98; Recording Secretary, O. S. True, '98; Corresponding Secretary, J. M. Pierce, '98; Treasurer, R. B. Mitchell, '99.

Y. W. C. A.—President, Emma Finley; Vice-President, Maggie Correll; Recording Secretary, Ethel Wolfley; Corresponding Secretary, Mary Waugh; Treasurer, Lucy Cottrell.

Webster Society.—President, W. B. Chase; Vice-President, J. B. Norton; Recording Secretary, S. Nichols; Corresponding Secretary, F. Zimmerman; Treasurer, C. Masters; Critic, R. J. Peck; Marshal, C. D. Lechner; Board of Directors, R. W. Bishoff, S. B. Newell, R. B. Mitchell, C. C. Jackson, P. K. Symms.

Ionian Society.—President, Winifred Houghton; Vice-President, Emma Finley; Recording Secretary, Jessie Bayless; Corresponding Secretary, Bonnie Adams; Treasurer, Dora Shartell; Critic, Myrtle Hood; Marshal, Clara Long; Board of Directors, Harriet Vandivert, Minnie Copeland, Olive Long.

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December 5th.

The Ionian Society was called to order by Miss Houghton, and after singing by the Society, Miss Maggie Correll led in prayer. Miss Bayless called the roll. Misses Curry and Myers were elected to membership, and Miss Curry was initiated. The program was opened with an instrumental solo by Miss Hathaway. The miscellaneous quiz conducted by Miss Maelzel was well responded to. Among them was Miss Johnson, who responded to the question, "Which is the more interesting to an observer, base ball or football?" Miss Tacy Stokes recited, "Mary had a Little Lamb," much to the amusement of all. Lottie Forsythe told what was the quid to our Society proceedings. Miss Rhodes spoke of the advantage of having gentlemen visitors only part of the time. Miss Emma Finley discussed briefly the college song. The next number was a vocal solo. The Oracle was edited and read by Miss Jessie Bayless. It was long and varied, and the articles well written and well read. Altogether it was the best number on the program, and among the best papers of the term. Miss Huntress rendered a piano solo. The reading given by Miss Mabel Crump was a pleasant addition to the program. The business session which followed was short though not uninteresting. The roll call with quotations was well responded to and closed the session. B. F. A.

December 12th.

President Chase was in the chair for the Websters. W. M. Ireland offered prayer. In debate, A. E. Blair and F. C. Sweet won the "toss" and took the affirmative side of the question, "Is art more pleasing to the eye than Nature?" By "tandems" and "end runs" they went across the line this way: Landscapes are more beautiful when they are dotted with civilization; cultivated fields look more pleasing to the eye than wild, uncouth weeds; a diamond when first dug up is very rough, but by art it is transformed into a beautiful ornament; we would rather meet a wild animal in a cage than in Nature's home, the jungle; photographs are better looking than the original; people dress to help smooth out the rough places of Nature; fine, artistic buildings are more beautiful than rocky mountains. At this stage it looked as though it would be a "love set," but A. G. Wilson and C. A. Scott "braced up" and returned everything that came their way; they drove the balls to the side court and back lines with arguments that art tries simply to imitate Nature; it never attains perfection, and only makes us wish to see the original; we are unable to judge size or splendor by pictures, for instance, the Niagara Falls; Nature is constantly growing and changing, hence monotony is destroyed. When the game was done, the negative had the most men on the board, so were given the decision. C. V. Bunch gave us some finger action on the piano, and responded to an encore. Both pieces were highly appreciated. F. B. Conner gave a good declamation on Benjamin Franklin. The Reporter was read by F. Zimmerman. Poetry was a leading figure, and the edition showed that the different contributors did some earnest work. The Hamilton Band was introduced by C. Masters, and they performed in a first-class manner. S. Dolby gave us a treat in the way of a poem, representing a Webster at sixty years of age and at eighty. M. D. Snodgrass gave a discussion on "The Rulings of the Board of Directors," after which the Society discussed the subject. After a lively business session, the fruitful Society year for '96 was brought to a close by adjournment.

F. Z.

December 12th.

The last meeting of the Y. W. C. A. for this term was held Saturday at the end of the fifth hour, with Prof. Will as leader. Nearly all the members were present. After a short song service, the scripture lesson was read. It was taken from Matthew, twenty-fifth chapter, beginning with the thirty-first verse. The leader then read a beautiful commentary from Lowell, upon these verses. In the short talk that followed, we all felt that in order to make our religious work what it ought to be, it must take on a practical form. All left the meeting feeling that they had been greatly benefited by the short service, and expressed their determination to come back next term ready and willing to do more in Association work.

E. F.

Accessions to the Library.

Botanical papers, by the following authors, have been bound in separate volumes:—

L. H. Pammel, Louis Planchon, D. G. Fairchild, (K. S. A. C. '88), I. Urban, M. B. Thomas, W. C. Stevens, Alexander Braun, Jakob Eriksson, B. F. Bush, H. J. Webber, Pasquale Baccarini, P. A. Saccardo, W. F. Ganong, T. Caruel, M. Underwood, Thomas A. Williams, William Trelease, Fanzu Bachenan, B. T. Galloway, Theodor Holm, N. A. Cobb, A. De Bary, P. Taubert, L. H. Bailey, W. T. Swingle, (K. S. A. C. '90), W. J. Beal, B. D. Halstead, Friedrich Hildebrand, M. Julien Constantin, W. A. Kellerman, Ellis & Everhart, C. E. Bessey, Max Hollrung, H. Klebalm, F. C. Newcombe, M. Baillon, D. P. Penhallow, Geo. Engelmann, H. Leveille, W. G. Farlow, R. Sadebeck, W. A. Setchell.

Trees of the Lower Wabash Valley, Ridgway.

Inter-relation of Plants and Animals, Riley.

Bacteriological Technology, Salomonsen.

Parasitism of Epiphegus Virginiana, Schrenk.

Blumen und Insekten, Müller.

Plants of Jamaica, Fawcett.

Catalogue of Plants, Oyster.

Aerations of Organs, Rowlee.

Fecondation dans les Phanerogames, Fournier.

Ligulate Wolfias, C. A. Thompson, (K. S. A. C. '93).

Peronosporae of the United States, Farlow.

Allium, Regel.

Tropical Africa, Drummond.

Ameisenpflanzen, Warburg.

Flowers and Insects, Müller & Delpino.

Transpiration in Cut Branches, Darwin & Phillips.

Bacillus of Cucurbits, Smith.

Uredineae of Illinois, Burrill.

Erysipheae, Burrill & Earle.

Japan—Catalogue of Agricultural Products.

Woods of the Amazon, Exhibited at the Columbian

Exposition.

Assimilation of Nitrogen, Lotsy.

Grasses of the South, Vasey.

Notes on Grasses, Kearney.

List of Books on Pollination, MacLeod.

Catalogue of the Phanogames and Vascular

Cryptogames Plants at St. Louis, Eggert.

Phyllospadix, Dudley.

Plants of Monroe County, New York, Beckwith

& Macauley.

Flora Peoriana, Brendel.

Grasses of the Pacific Slope, Vasey.

Uredinopsis, Dietel.

Proceedings of the Madison Botanical Congress,

1893.

Littertur über Morphologie Systematik und Ver-

breitung der Phanerogamen, 1892.

Index Perfectus ad Species Plantarum, Müller.

Peck's Report 22-26, 28, 30, 33-37, 42-46, 47.

Journal of the Trenton Natural History Society,

Vol. 1, No. 1, Best & Stokes.

Fodder and Forage Plants, Smith.

Notes on Methods in Biological Studies, Dolley.

Kansas Mosses, Reed.

Fungi in Wisconsin, Davis.

Plants of New Brunswick, Fowler.

Seed Coats of Malvaceae, Rolfs.

Life of Englemann and Bentham, Urban.

Gefrieren Erfrieren der Pflanzen, Göppert.

Bau des Holzes einigen Lianen, Witte.

Notes on Maize, Sturtevant.

Catalogue of Forest Trees, Vasey.

Plants of the Bible.

Wassersterne, Hegelmaier.

Plants of Lorain County, Ohio, Wright.

Development of the Collemaceae, Sturgis.

Grasses Solidago, Porter.

Monographie des Roses, Du Mortier.

Pollenschlanche, Miyoshi.

Papers on Fungi, Morgan.

La Morfologia Vegetale, Caruel.

Verbreitung der Holzarten, Graner.

Queensland Flora, Bailey.

Russian Thistle, Coburn.

Plants of Lake St Clair, Pieters.

Humbewohner West Indiens, Johow.

Agricultural Investigations at Rothamsted, Lawes

& Gilbert.

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THE DOMESTIC DEPARTMENT.

BY MRS. NELLIE S. KEDZIE.

NO one questions the value of domestic economy as a part of every girl's education. The question which may be raised is whether it is better to have every girl taught by her mother in her own home, or whether better results may be obtained by having many girls taught by one teacher in the school room. I believe every one who has looked into the matter carefully will agree that the latter is the better plan; for, if girls are taught in the schools, they also have the advantage of the mother's knowledge, ways, and experiences, thus giving them almost a double course.

The fact that the mothers have enough to do without teaching the daily routine lessons, is one which should weigh in forming judgments. We employ teachers to give instruction in almost every line, and are certain that trained teachers who carry no other cares are more competent to instruct the young people than are the mothers, be they never so well equipped by education, because the mind of the teacher can be wholly given up to the work in hand, while the mother is necessarily working with a divided mind.

If, then, the work of domestic economy is to be taught in the school, should there not be proper equipment for that work? A few of the schools of this country have already built suitable rooms for teaching domestic work. Here in our own College, while the Department of Domestic Economy has been in active work for over twenty years, the classes have been conducted in rooms which have very little adaptability to the needs of the Department. The sewing is managed in an ordinary class room, which has some shelves and cupboards that were made for the Sewing Department nearly twenty years ago.

The room would be quite comfortable for half the number that gather there each day. There is no fitting room, and the best that can be done at present is to fit dresses and other garments in one corner of the office belonging to the Department, with only a screen standing between the corner and the door opening into the hall. There is no room for advanced pupils, but these must work in the same room with beginners, using the same machines, shears, and cutting tables, and hanging their work in the over-crowded wardrobe made and intended for the Superintendent and her assistant.

When the time comes for the lessons in ripping, washing, pressing, and making over a dress, the class in sewing is taken down into the Kitchen Laboratory, and while the cooking classes "move over" a bit, the sewing girls borrow the dish pans and towel racks first, then the ironing board and flat irons, until their lesson is learned. How much better they might learn the lesson in a suitable room, where they would not be disturbing another class and spending half their time and strength in "making something do" when all their time should be put upon acquiring knowledge.

In the household economy, the work is even more inconvenient, because every day brings work on two floors. While one hundred and fifty girls sew in rooms planned for seventy five, sewing can be crowded; it can be done in the office sometimes, and only the lack of more advancement be the definite results seen. We see what might be done in better quarters in the sewing, but in the Kitchen Laboratory work there is direct loss of time and strength every day. The lecture room is on one floor, with the Laboratory below it. There is no provision for a class to take notes in the Laboratory, and there are no arrangements for a teacher to give demonstration lessons in the lecture room. There have usually been given fewer lectures than the teacher would like to give, because of the inconvenience occasioned by loading up a table down stairs and having it carried up to the lecture room. Of course, an effort has been made to put on that table everything necessary for the lecture, and a small oil stove supplies the heat used during the lecture, while the article made before the class is carried down stairs for final cooking.

When the class prepare an occasional practice meal, which they do often enough to give them the training they need, the food is cooked in the Kitchen Laboratory, carried through the hall, up stairs, and through another hall before it reaches the table. In serving large companies, in which the Post-graduates get some practice, the sewing classes have to be moved, giving up their time and place that one afternoon in each term may be given to teaching Post-graduates the necessary lesson of proper serving.

The classes in cooking are now held in a room planned for ten pupils at a time. Last winter we had sixty-three pupils in four hours. I have seen the sewing can be crowded. We have provided the bread, the pies, and even the doughnuts can be crowded, also, but it does not improve either the food or the lessons learned by the pupils, to be obliged to cook custard, loaf cake, and a roast beef, in the same oven, where a pot of beans is being baked.

We have always held that pupils learned more practical lessons by making quantities of food which might serve for four or six people in each dish, and the fact that our students buy much of their food in the shape of ten-cent lunches makes that plan practical in this college. While classes were small, we had little difficulty, for our equipment for work is good. But since the classes are so large, since Post-graduate students come back for more study, we crowd each other until I often wonder why girls choose cooking as an industrial in our inconvenient basement rooms.

The fact that nine of the graduates of this College are teaching domestic economy in as many States, and that without exception these teachers have rooms that are better fitted for their use and more convenient in many ways than are those in which they studied in Kansas, makes it seem that Kansas must do better for her daughters who come to the Agricultural College for work in these lines.

If we are to continue supplying teachers of sewing or household economy, or both, we must see to it that they have an opportunity to become so well equipped that they will be ready for the work which will be demanded of them.

In the Sewing Department, there should be a room with working materials for beginners, and one for the advance pupils. There ought to be one room used exclusively for dressmaking, and off that there should be a small fitting room, and another room which shall be used for ripping, washing, and pressing goods to be made over. This room, fitted with the needed appliances, should be used for no other lessons.

In the Household Economy Department, a lecture room and a laboratory for the large Second-year classes, a room for Post-graduate workers, a dining room where the special classes may be trained in serving food, and a room which may on special occasions be used as a company dining room, are the least number of rooms that can give to these girls the training they need.

We hope to see in the near future a building which will give all the room needed in this work. Then Kansas will be able to keep up the standard she has set, and the Agricultural College graduates will still be counted among the best teachers of household economy and sewing.

THE INDEPENDENCE OF FARM LIFE.

BY PROF. J. T. WILLARD.

THE independence of farm life, though often spoken of, is seldom appreciated until it is lost. In primitive conditions, the farmer's independence was even greater than at present. Not only was all the food used his own product, but the clothing, furniture, and many utensils and tools were of home manufacture. With the advance of civilization, much of this material independence has gone, but the farmers still retain, what is possessed by no other class, the means of sustaining the body, limited only by the bounty of nature.

His physical independence is, however, a smaller possession than his mental freedom. In times past, people have expatriated themselves to retain religious freedom, or have been banished for refusing to yield to the beliefs of the governing powers. Men have suffered torture and death for daring to be in an aggressive minority on intellectual and moral questions. Now we boast the priceless possession of freedom of thought and speech for all!

Theoretically, we all possess this freedom. Practically, its exercise is largely restricted by the natural population. Not that bonds or torments would be meted out to members of other classes, but from their dependence on others, they are consciously or unconsciously under restraint. The merchant must take care not to offend any of his customers by outspoken opinions, or his trade will suffer. Mechanics, to a certain extent, must cater to the goodwill of all parties. Lawyers of ability are perhaps as free as any of the professional classes, but even they find it advantageous to form partnerships between members of different political parties. Ministers are very much

I. LEADING PROVISIONS OF THE FIVE GREAT WAR LOANS.

NO.	FORM.	DATE.	AMT. AUTHORIZED	DESIGNATION.	TO BE SOLD—	PAYABLE IN.	INTEREST.		
							PAYABLE IN.	HOW.	RATE.
1	Bonds.....	Feb. 25, 1862.	500 millions.....	1st 5-20's of 1862.	At market value for coin of U. S.; or for any treasury notes already authorized; or for U. S. notes provided for in this act.— <i>Sec. 2.</i> Upon such terms as the Secretary of the Treasury may deem most advisable, for lawful money of U. S., or for any of the certificates of indebtedness or deposit that may at any time be unpaid, or for any of the treasury notes heretofore issued, or which may be issued under the provision of this act.— <i>Sec. 1.</i> Same as preceding.— <i>Sec. 1.</i> In U. S. or Europe upon such terms as the Secretary of the Treasury may deem most advisable, for lawful money of U. S., or at his discretion, for treasury notes, certificates of indebtedness, or certificates of deposit issued under any act of Congress.— <i>Sec. 1.</i> Where, and under such conditions, and at such rates as the Secretary of the Treasury deems best, for coin or other lawful money, treasury notes, or certificates of indebtedness or deposit, and the like.— <i>Sec. 2.</i>	Nothing said. (See Bolles, pages 316 et seq.) Coin.....	Nothing said.	Semi-annually.	6 per cent.
2	Bonds.....	Mar. 3, 1863.	900 millions.....	10-40's of 1863....		Coin.....	Nothing said.	Semi-annually.	Not over 6 pr ct.
3	Bonds.....	Mar. 3, 1864	200 millions.....	5-40's of 1864.....		Coin.....	Nothing said.	Semi-annually.	Not over 6 pr ct.
4	Bonds.....	June 30, 1864.	400 millions.....	5-30's or 5-40's of 1864.		Nothing said....	Coin.....	Semi-annually.	Not over 6 pr ct.
5	Bonds or Interest Bearing Treasury Notes.	Mar. 3, 1865.	600 millions.....	5-40 bonds and 7-30 notes of 1865.		Coin or other lawful money.	Coin or other lawful money.	Semi-annually on bonds. On treasury notes semi-annually, annually, or at maturity.	If in coin, not over 6 pr ct. If not in coin, not over 7.3 per cent.

II. REFUNDING ACTS.

NO.	DATE	BONDS AUTHORIZED —AMOUNTS.	RATE.	PAYABLE.	REDEEMABLE.	CONDITIONS AND APPLICATION.
I	July 14, 1870.	(a) Not more than 200 millions.	Five per cent payable semi-annually in coin of present stand'd value.	After 10 years at pleasure of United States.	In coin of present stand. ard value.	To be sold at not less than par for coin; proceeds to be applied to redemption of 5-20's at par; or exchanged for 5-20's par for par. To be used for no other purpose.
II	January 20, 1871	(b) Not more than 300 millions. (c) Not more than 1000 millions. Class (a), above, to be increased to 500 millions; though 1500 million limit (200 plus 300 plus 1000) is not to be passed.	4½ per cent. do. 4 per cent. do.	After 15 yrs do After 30 yrs do	"	Secretary of Treasury may make interest on any of above bonds payable quarter-yearly.
III	January 25, 1879.	Secretary of Treasury may employ 5-20's. When all such have been redeemed, "provisions of this section and all existing provisions of law authorizing refunding of national debt shall apply to any bonds of U. S. bearing interest at 5 per cent per annum or a higher rate which may be redeemable."				Double interest for three months is provided for.
IV	February 26, 1879	The act authorizes exchanges as follows: 1. Bond-holder may present to Secretary of Treasury a five per cent bond of Act of July 14, 1870*, and receive a Legal Tender. 2. Bond-holder may present to Secretary of Treasury a Legal Tender and receive a four per cent certificate of deposit. 3. Bond-holder may present to the Secretary of the Treasury a four per cent certificate of deposit and receive a 30-year 4 per cent bond.				

*These bonds, having but ten years to run, were in 1879 almost due.

hampered, since none may question the dogmas of his political organization without incurring the dangers of ecclesiastic trial. Moreover, the minister must eschew political discussion, or those whom he opposes will be sure to see in his action a degradation of his high office. Teachers also must keep their opinions to themselves, on all topics save those they are hired to teach, on pain of being accused of taking undue advantage of the young intrusted to their care. Even when within their proper limits, if they are teachers of science, they are liable to offend someone's religious views; or if they are teachers of political economy, they necessarily traverse the opinions of the practical politicians of one or more parties. Compare them with any or all other classes, and it will be found the farmers are the intellectually unconstrained, while the others are more or less fettered because of their physical dependence. May it not be that it is to this independence that we owe the faith that nearly all feel in the ultimate correctness of the judgment of the great agriculturist class on political questions? The freedom, amounting to bluntness at times, with which farmers express their views even to strangers, while others approach the matter gingerly, endeavoring to avoid giving offense, is also doubtless connected with the independence which they enjoy.

SOME FACTS CONCERNING OUR PUBLIC DEBT.

BY PROF. THOS. E. WILL.

OUR national debt, like the poor, we have always with us. True, we have paid on it multiplied millions, yet computations have been made by reputable authorities which seem to prove that the growing value of the dollar and the corresponding fall in the price of commodities have gone far toward neutralizing, if they have not wholly neutralized, the effect of such payments, leaving the debt almost if not quite as great as at the close of the war.*

Without attempting here to test the accuracy of such computations, the writer desires to put in compact form a number of the leading facts regarding the debt contracted in the war period, together with the subsequent "refunding" of the same, and to call attention to a few of the more important points.

The first of the subjoined tables presents the leading facts regarding not the whole of the war debt, but the five great loans of the war period.

What first impresses us is the enormous size of these loans; 500, 900, 200, 400, and 600 millions of dollars are authorized, each in a single act.

The term "5-20" signifies that the bond so designated was payable by the Government in not less than five nor more than twenty years; that is, the Government could not require the bond-holder to accept payment for his bond until five years had elapsed from the date of contract. From that date until after the twenty years had expired, the Government enjoyed the option of paying whenever it pleased. At the expiration of the twenty years, however, the bond-holder acquired the right to demand immediate payment, should he so desire. Similarly, the terms "10-40," "5-30," and "5-40" are to be understood. The term "7-30," however, as applied to the notes authorized in the fifth of these loans, signifies that such notes bore interest at the rate of 7.3 per cent, provided such interest was not payable in coin.

Note next what the Government was to receive in exchange for these securities. Some, it would seem, still believe that the Government bonds were sold for gold, and that for this reason the public faith would be broken by seeking to discharge them in anything else than gold. Inspection of the chart, however, will show that there is not a single bond or note in the lot that was to be sold exclusively for gold or

even for gold and silver. The Government was in straits, and was forced to sell its securities for what they would bring in any kind of lawful money.

Again, it is sometimes argued that the Government obligated itself to pay its debt in gold or, at least, in coin. A glance at the chart, however, shows us what the laws themselves reveal on this subject. By the second and third loans the Government bound itself to pay the principal in coin; that is, in either gold or silver at its own option. By the terms of the fourth loan the Government contracted to pay the interest on this loan in coin. Gold is not mentioned in a single instance. Coin (either gold or silver) payment is made obligatory twice for principal and once for interest; out of a possible ten times, that is, coin is positively stipulated three times, and gold not at all.

It is true that some authors, as Bolles, maintain that, even when not so specified, it was understood that these obligations were payable in coin. It is not, however, the writer's purpose to argue the question of the interpretation of the law. Whatever, properly or improperly, may be read into it, it is clear that, with the exceptions noted, neither gold nor silver coin is "nominated in the bond."

Realizing the danger for the public creditor in the situation,—the danger, namely, that he might be asked to receive the same kind of money he paid for his bonds, the same kind the soldier was paid for his services, and the same kind, in fact, in which corporations, states, and private individuals were discharging their obligations,—Congress made haste to free the matter from all ambiguity. By the "Credit Strengthening Act" of March 18th, 1869, it provided that "the faith of the United States is solemnly pledged to the payment in coin or its equivalent of all the obligations of the United States not bearing interest, known as United States notes, and of all the interest-bearing obligations of the United States, except in cases where the law authorizing the issue of any such obligation has expressly provided that the same may be paid in lawful money or other currency than gold or silver."

That is, wherever a doubt existed as to the kind of money in which the Government obligations might be discharged, the creditor was to be given the benefit of the doubt. By this provision the specter of payment in depreciated paper money was banished; yet even this act which so greatly revived "confidence" provided not for gold, but only for coin payments.

A glance next at the "Refunding Acts." The avowed object of these acts was to enable the Government, without breach of the public faith, to lower the rate of interest on its bonded debt. The war scare was now past. No question remained as to

either the ability or the willingness of the Government to meet its obligations in full, to say the least. Six per cent was a high rate of interest on a perfect security exempt from taxation. The time had arrived when the Government might exercise its option of paying off a large part of its debt. It was therefore in a position to say to its creditors, Return your bonds for payment, or exchange them for new bonds bearing a lower rate. The first and chief of the refunding acts was passed July 14th, 1870. It authorized the refunding of 1500 millions of debt at rates of five, four and one-half, and four per cent. Such a refunding would mean a saving of millions annually in interest.

After the warning given by the "repudiation" talk that led up to the "Credit-Strengthening Act," our financiers took care that these new bonds should guarantee on their face coin, though still not gold, payment.

But while the new bonds meant a saving in our yearly interest payments, they contained another provision less gratifying to the tax-payer. The old bonds, it will be recalled, might be paid at the Government's option at an early date; in the case of the second loan, after ten years, but in the cases of the other four loans shown on the chart, after five years only. The new bonds, however, were of longer life. The first lot, it is true, might be paid after ten years; but the second lot was payable only after fifteen years; while the third, or billion-dollar, thirty-year lot was practically placed beyond the reach of the generation then living. This is what is called "perpetuating the debt," and "bonding posterity." In return for such a privilege, public creditors could well afford to lower the interest rate, especially if they had reason to believe that for any cause dollars would grow dearer with the lapse of time.

The act of January 25th, 1879, provides for giving to still other bonds a thirty-year lease of life, at four per cent interest. The double-interest feature is pointed out by Bolles, and was criticised by Secretary Sherman; but "Congress would not change the law. Payment of double interest was therefore inevitable."†

The act of February 26th, 1879, is a brief, though peculiarly blind, piece of legislation. Unraveled, it seems to resolve itself into the form shown on the chart. By 1879 the first lot of bonds authorized by the act of July 14th, 1870, the "New Fives," were most within the reach of the Government paymaster. By availing himself, however, of the opportunity provided by this act, the holder of a five per cent bond of 1870, instead of taking pay in cash which he might

†Bolles, Financial History, Vol. III. page 335.

*See "The Bond and the Dollar," by Professor John Clark Ridpath, in the *Arena* for January, 1896, pages 271-2.

†See Bolles' Financial History of U. S., Vol. III. p. 318.

Calendar.

1896-97.
Fall Term—September 10th to December 19th.
Winter Term—January 5th to March 27th.
Spring Term—March 30th to June 10th.
June 10th, Commencement.
1897-98.
Fall Term—September 9th to December 18th.

To School Officers.

The College Loan Commissioner has funds now to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioner and the State Agricultural College. Address C. R. Noe, Loan Commissioner, Leon, Kan.

GENERAL LOCAL NOTES.

The INDUSTRIALIST will not be printed next week.

The Herald printed a picture of the College football team last week.

A considerable number of students have gone home for the holidays.

Mr. and Mrs. Breese have gone to their old home in Chase County for the holidays.

Prof. Brown has moved into the Adams house, corner of Houston Street and Juliette Avenue.

The winter term opens Monday, January 4th, with examinations for admission at eight o'clock A. M. Classes will be formed on Tuesday.

About twenty students will work on their maps during the holidays in advance of the winter term. Prof. Walters will meet them daily.

The College was represented at two farmers' institutes last week—at Oak Grange, Shawnee County, by Prof. Georgeson and Mrs. Winchip, and at Nortonville, Jefferson County, by Prof. Olin and Mrs. Kedzie.

Will Carleton's lecture at the Opera House on Thursday evening was largely attended by an appreciative audience. "The Drama of Life" proved a most interesting topic, being illustrated, as it were, by many of this favorite author's best poems in which wit, humor, pathos, and sentiment were delightfully blended.

The Stokes home was the scene of a merry gathering on Friday evening, as Grace and Tacy Stokes and Bertha and Wilhelmina Spohr exerted themselves to entertain eighteen young College friends. The efforts of the hostesses were rewarded, the guests agreeing without a dissenting voice that the evening would be a memorable event in their College life.

GRADUATES AND FORMER STUDENTS.

Marian Jones, '96, has resigned her place as teacher of the Blasing School.

Maude Whitney, Third-year in 1890-91, has, according to the Kansas City papers, joined Mlle. Rhea's dramatic company for the remainder of the season.

S. C. Harner, student in 1891-2, was married, November 25th, at Green, Kan., to Miss Vetra Hugner. They live on the farm a few miles from Green.

Prof. Arnold Emch of the University, special student in 1893-4, has written a paper for the American Mathematical Association which holds its meeting at Chicago during the holidays.

Dustin Avery, Second-year in 1892-3, accompanied by Scott Farman, Second-year in 1893-4, visited College on Wednesday. Mr. Avery is a locomotive engineer on the Santa Fe Railway in Mexico. He visits relatives in Wakefield and Manhattan during his stay.

Alma people seldom have an opportunity of hearing a purer, sweeter voice than that of Miss Lyman ['94] of Manhattan, who sang at the Congregational Church last Sunday evening. If she continues her musical studies, she will become a star.—*Alma Enterprise*.

Notes from the Entomological and Zoological Department.

Prof. Popenoe attended the annual meeting of the State Horticultural Society in Topeka, last week, where he presented a paper entitled, "Hardy Garden Plants." During his absence, the classes were under the direction of Assistant Marlatt.

A large nest of the bald-faced hornet, *Vespa maculata*, was recently received with the card of C. W. Thompson, Holton, Kansas. Mr. Thompson will be remembered by many friends at the College as a graduate of the Class of '89.

W. E. Butler, a former student, and now proprietor of the Cerillos Coal Yards at Albuquerque, New Mexico, adds to the entomological collection a large tarantula.

M. G. Spalding, '96, adds to his former gifts to the College a lot of fossils from Greenwood County, Kansas.

Prof. Mason enriches the zoological collection with a fine lot of tertiary fossils from the marl beds of the James River near Williamsburg, James City County, Virginia. The collection was made recently, during Prof. Mason's attendance as a delegate at the Association of Agricultural Colleges and Experiment Stations at Washington.

The following donations were received during November and December: Flicker, A. K. Browning; screech owl, P. H. Rader; poucher rats, D. W. Randall; fox squirrel, F. H. Meyer; screech owl, H. J. Robison; wood rat, A. C. McCreary; water spaniel,

I. D. Graham; common mice, F. A. Marlatt and C. W. Pape; screech owl, H. M. Horn; Norway rat, fox squirrel, and sharp-shinned hawk, C. M. Breese; red-tailed hawk, Prof. Popenoe; English sparrow, black-capped chickadee, tree sparrow, pine siskin, F. A. Marlatt; English sparrow, tree sparrows, northern shrike, red-bellied wood pecker, two flickers, English sparrow, white-breasted nuthatch, F. V. Dial; fossils, Jesse Norton.

BERTHA KIMBALL.

Notes from the Library.

The Library will be open during vacation the same as when College was in session.

Twenty volumes of Public Documents, besides numerous Consular Reports and other pamphlets, were donated last week by Col. J. B. Anderson from the library of the late John A. Anderson. They are valuable accessions to the Library, as they supply numbers which are needed to make complete sets.

The INDUSTRIALIST proves a very good advertising medium for the Library. New books announced through its columns are promptly inquired for by students. In order that students may look over the new books before they are placed upon the shelves, they are first placed on a table in the reading room and are allowed to remain there for a week or more.

Of the Public Documents received last was a copy of the Document Catalogue dating from March 4th, 1893, to June 30th, 1895. This volume is not a catalogue of the Public Documents alone, but of the publications of all the Departments of the Government as well, and will prove valuable to students in all lines of study.

A box containing ninety-eight volumes was sent to the bindery last week. Another box will be sent during the holidays.

There were added by purchase, last week, eleven volumes of the Transactions of the American Society of Mechanical Engineers, volumes seven to seventeen inclusive.

I. A. ROBERTSON.

To K. S. A. C. Students and Graduates.

Our Annual State Teachers' Association brings many Agricultural College students together each year, and a reunion, from time to time, has for years been our custom. Last year a formal organization was effected and arrangements made for a permanent Reunion Association at this time.

Wednesday evening, December 30th, has been selected for this year's reunion. It will be held in Topeka's High School Building at 9:30 p. m., being after the Association lecture. Some excellent music has been prepared expressly for the occasion.

Professor O. E. Olin will give an address, followed by a general roll-call talk. Let every K. S. A. C. student attending the State Teachers' Association be with us and help make it a joyful occasion and a full reunion. Headquarters for enrolling will be in the cloak lobby, southeast corner of Representative Hall, Capitol Building. The President of the Reunion Association will have charge Tuesday night, December 29th; the Secretary, Wednesday night; the Class of '97, Thursday night.

Let every graduate and student in Topeka at that time enroll at headquarters and attend our roll-call reunion on Wednesday, the 30th. ELSIE CRUMP, Secy. Reunion Association.

Farmers' Institutes.

Institutes have been appointed and assignments made from the College as follows:—

Hackney, Cowley County, December 29th and 30th; Professors Failyer and Mason.

Hiawatha, Brown County, December 30th; Dr. Mayo.

Overbrook, Osage County, January 21st and 22nd; Professors Mayo and White.

Wellsville, Franklin County, January 22nd and 23rd; Professors Georgeson and Will.

Peabody, Marion County, January 28th and 29th; Professors Walters and Mason.

Hutchison, Reno County, February 4th and 5th; Professors Hitchcock and Nichols.

Berryton, Shawnee County, February 11th and 12th; Secy. Graham and Mrs. Kedzie.

Haven, Reno County, February 11th and 12th; Professors Lantz and Popenoe.

Stockton, Rooks County, February 4th and 5th; Professors Hood and Burtis.

Pleasanton, Linn County, January 7th and 8th; Professors Walters and Georgeson.

The Teachers' Meeting.

Paragraphs from the *Nationalist's* report of the meeting at Randolph:—

G. W. Finley ['96] gave a paper on "Individuality in School Work." No two teachers are exactly alike in their methods, nor is it right that they should be. New methods should never be followed servilely. Never put them in practice in your school until you are sure they are best suited to the subject and to your pupils.

Miss Elizabeth Edwards ['92] then told, in her charming and characteristic manner, some reminiscences of her visit in Wales. It was almost like a trip with her in her beautiful native land. The national schools of the country were humorously described. In her travels she met many Americans. She could recognize them by their toothpick shoes

and by their voices, for they do not speak from the depth of their chest as do the Britains. She told us that the country still keeps its language, notwithstanding King Henry's attempt to kill it, and in closing sang the national hymn of Wales.

The first paper of the afternoon session was "Origin and Development of Child Study," by Will E. Smith ['93]. This was a most excellent paper. By unanimous vote the Association asked that the paper be published in full. It will appear in next week's issue.

In discussion of this paper, Hon. Ed. Secrest spoke feelingly of its tribute to his illustrious countryman, Pestalozzi, who, he said, will be remembered and loved long after the warrior heroes of Switzerland are forgotten. "Pestalozzi's soul was as white as the cross in his country's flag." He discussed an Empire, child nature. Mr. Secrest spent his boyhood near Zurich, the birthplace of Pestalozzi, and he remembers the celebration of the one-hundredth anniversary of the birth of the Swiss hero, "Teacher of humanity at Yverdon; for himself, nothing; for others, all."

Paper, "Do We Teach Pupils to Think?" was read by Miss Nora Fryhofer ['95]. The teacher should guard against doing too much for the pupil. Telling is not teaching; the knowledge is not the pupil's own unless he has thoroughly assimilated it, made it his own by thought. Dr. Arnold said, "The effort a boy makes is of a hundred times more value to him than the knowledge acquired as the result." Children like to search for truth. They should not be discouraged in asking questions. This was a good practical paper and called forth interesting discussion.

"Founders of American Literature" was the subject of a most interesting paper by Miss Grace A. Secrest ['96]. Before the national period, literature was at a low ebb. The period known as the dawn of American literature included the years between the dates 1783 and 1830. Before that time the struggle for existence and for liberty had filled the minds of the colonists. She spoke of the works of Irving, Cooper, Prescott, Motley, Bryant, Longfellow, Emerson, Hawthorne, and Holmes, and read beautiful selections from Bryant's "Thanatopsis," and "Lines to a Waterfowl;" Longfellow's "Hiawatha," and Holmes' "Chambered Nautilus."

Ill health prevented Secretary Graham from delivering the lecture as announced. After music and the transaction of miscellaneous business, the Association adjourned.

COLLEGE ORGANIZATIONS.

December 12.

At the usual hour, Vice-President Dille called the Society to order for the last session of the year. After the opening song, R. W. Clothier led in devotion. Marion Gilkerson and Ella Barnard then favored the Society with a vocal duet. Miss Melvia Avery was initiated as a member. "No Saloons up There" was the subject of R. S. Wood's reading, which was well presented. Miss Berkey recited the pathetic story of the "Polish Boy." In a well-written oration Cassie Dille gave some interesting thoughts on "Curiosity." The next musical number was a piano solo, rendered by a visiting student, Miss Hathaway. R. W. Clothier opened the discussion on the question, "Resolved, that the East offers greater advantages to the development of youth than the West." The negative was presented by Mr. Forest. The discussion was interesting throughout, and good argument was produced on both sides. The Gleaner was read by its editor, Nora Reed. Motto, "When the shore is won at last, who will count the billows past?" Some of the selections were, "When My Ship Comes In," "My Last Ride," "The Last Banquet," and "New Year Resolutions." After recess the program began with an instrumental duet, cornet and piano, by Mr. Karl Hofer and Marian Gilkerson. Roll call found nearly all the members in their places. Miss Josephine Finley presented "An Ideal Girl" as she had been described by different persons during the day. The "Ideal" proved to have many different qualities. After reports from committees on Annual and usual business, the Society adjourned. E. L. W.

Accessions to the Library.

Botanica Systematica, Gomez.
Bast Fibers, Dodge.
Peach Yellows and Peach Rosette, Smith.
Economical Plants in the Missouri Botanical Garden.
Pestiferous Fungi, Cooke & Bailey.
Keimplanzchen, Simek.
Catalogue of Economical Plants, Saunders.
Bacteria, Russell.
Weeds, Dewey.
Compositae, Winkler.
Plants of Kansas, Smyth.
Diseases of Citrous Fruits, Swingle (K. S. A. C., '92) & Webber.
Ancient Regime, Taine.
Nut Culturist, Fuller.
Outlines of Forestry, Houston.
White Pine, Pinshot & Graves.
Timber and Some of Its Diseases, Ward.
Studies in Forestry, Nisbet.
Timber and Timber Trees, Hartig.
Illustrated Flora of Northern United States and Canada, Vol. I, Britton and Brwn.
Horticulture, Wright.
Lancashire Garden, Bright.
How to know the Wild Flowers, Mrs. Dana.
English Flower Garden, Bright.
The Garden's Story, Ellwanger.
Great World's Farm, Gaye.
Foods: Their Composition and Analysis, Blyth.
Eating for Strength, Holbrook.
First Aid in Illness and Injury, Pilcher.
Memorial Addresses on the Lives and Characters

of Post, Shaw, Houk, Lisle, O'Neill, and Wright.
Genius and Degeneration, Hirsch.
Degeneration, Nordau.
Method of Darwin, Cramer.
Alterations of Personality, Binet.
Artistic and Scientific Taxidermy and Modeling, Browne.
Froebel's Occupations, Wiggin & Smith.
Froebel's Gifts, Wiggin & Smith.
Law of Civilization and Decay, Adams.
Education of the Central Nervous System, Halleck.
Text-book of Comparative Anatomy, part I, Lang.
Text-book of the Embryology of Invertebrates, part I, Heider.
Frail Children of the Air, Scudder.
Development of Periodic Law, Venable.
Cellulose, Cross & Bevan.
Constitutional History of the United States, Vol. 2, Curtis.
Taxation in the United States Under Internal Revenue System, Howe.
Russian Politics, Thompson.
Historical Development of Modern Europe, Andrews.
Soil, King.
Delicate Feasting, Child.
Rest for Women, Jacobi.
The Cat, Huidekoper.
Horses: Sound and Unsound, Lupton.
Equine Practice, Robertson.
Principles and Practice of Dentistry, Harris.
Magnetic Measurements, Nipher.
Wave Motion, Michie.
Electrical Standards, Jenkins, Ed.
Hertz, and some of His Successors, Lodge.
Electricity and Magnetism, 2 Vols., Mascart & Joubert.
Alternating Currents, Hospitalier.
Electricity in the Service of Man, Wormell.
Induction Coils, Bonney.
Electric Lamps and Electric Lighting, Fleming.
Electric Waves, Hertz.
Magnetic Induction in Iron and Other Metals, Ewing.
Higher Mathematics, Merriman & Woodward.
Engineering Education, Vols. 1, 2, and 3.
New York's Inferno, Commissioner and Mrs. Ballington Booth.
Southern Sidelights, Ingle.
Herd Register, Vol. 45, 1896.
Journal of Political Economy, Vol. 4.
Engineering Magazine, Vol. II.
Electrical Laboratory, Notes and Forms, Fleming.
American Kitchen Magazine, Vols. 1, 2, 3, 4, 5.
Chemical News, Vols. 68, 70, 73.
Commissioner of Patents, 1894.
Naturlichen Pflanzenfamilien, Teil 3, Haffe 1, Engler & Prantl.
Handbook of Hygiene, Davies.
Annual report of the Department of Agriculture, Ontario, 1895. 2 Vols.
Freeland: A Social Anticipation, Hertzka.
Rebellion Records, Vol. 48.
Missouri Geological Survey, Vol. 9, Keyes.
Labor Movement, McNeill.
Document Catalogue, March, 1893, to June, 1895.
Agriculture, Storck. 2 Vols.
Kindergarten Principles and Practice, Wiggin and Smith.
Transactions of the American Society of Mechanical Engineers, Vols. 7-17.
Kansas State Penitentiary Report, 1895-96.
Ohio Dairy and Food Commissioner, 1896.
Cayuga Flora, Dudley.
Bulletin from the Botanical Department of Iowa, 1888, Halsted.

EXPERIMENT STATION.

Die Vegetationsverhältnisse von New Guinea, Warburg.
Salix, Glatfelter.
The Distribution of Life, Wallace & Dyer.
Populus, Wesmael.
Structure of the Fruit in Ranunculaceae, Wiegand.
Recent Additions to Canadian Filinaceae, Burgess.
Mortalita Tabacco, Comes.
Hygroscopic Mechanism, Darwin.
Najas, Magnus.
Essai Elementaire, DeCandolle.
Flowers and Insects, Robertson.
Die Getreideroste, Eriksson & Henning.
Special Report on Food Adulterations.
Annual Conventions of American Agricultural Colleges and Experiment Stations 3rd-9th.
Organization list of Experiment Stations, 1892-1896.
Contributions from the United States National Herbarium, Vols. 1-4.
Contributions from the Herbarium of Columbia College, Vols. 1-3.
Botanischer Centralblatt, 1896 Vol. 64.
Just's Botanischer Jahresbericht, Vols. 21-22 1893.
Bulletins from the Laboratories of Natural History, Iowa, Vol. 3.
Food and Food Adulterations.
Trelease Papers, 1892-96, Yucca.

Artificial whole coffee has long been known as a commercial commodity, but we were scarcely prepared for the statement recently made by the *West Indian and Commercial Advertiser*, that it is now manufactured to an alarming extent, consisting of the roasted meal of different cereals worked up with dextrine. Two different factories, it is stated, have been established at Cologne, which undertake to furnish the requisite machinery and plant, with directions for making the false coffee beans. The apparatus supplied by these wholesale swindlers is capable of turning out more than half a ton daily, at a cost of about \$1 (\$4.44) per cwt., good coffee having nearly five times this value in the market. The fictitious coffee is difficult of detection by ordinary examination, especially when a proportion of genuine coffee is mixed with it.

SOME FACTS CONCERNING OUR PUBLIC DEBT.

(Continued from page 69.)

find difficulty in investing to so good an advantage, might exchange his old bond for a new one bearing a good rate of interest, exempt from all taxation, national, state, or municipal, absolutely safe and with a life of thirty years before it. Undoubtedly he made the trade.

Aside from the question of an appreciating money standard, the social consequences of our tying our hands for thirty years are important. There can be no question that the vast majority of the American people repudiate the doctrine that "a national debt is a national blessing," and would be glad to aid in sweeping away the last vestige of our public debt; yet more than once the nation has been faced with a bursting treasury, with "a condition" rather than "a theory," and with the question what to do with the surplus. This was true in 1872, but two years after the passage of the first and chief refunding act; at this time the nation, after paying its interest and all appropriations, had an overplus of 100 millions annually cumbering its treasury—a condition that led to the ten per cent horizontal reduction of the tariff in 1872. It was true again in 1887, when President Cleveland issued his "Free Trade Message" demanding a reduction in duties to relieve the "congested treasury and the depleted circulation." It has been true at other times when Congress has hastened to reduce revenue duties (not protective duties), lest a swollen treasury should inure to the disadvantage of the protective system. Yet all the while there has rested upon the shoulders of the people a mountain of interest-bearing debt. Why not apply the surplus to paying the debt? Because our astute financiers in the years between 1870 and 1880 had tied our hands. True, the Secretary of the Treasury might join the ranks of the bulls and bears in the market and buy bonds as any other speculator might do; but the special privilege represented by a long-time, non-taxed, absolutely safe security as "good as gold," is so great that the Secretary would be obliged to pay for the bonds a premium that would offset the interest saved. The transaction would therefore "cost as much as it would come to." There is nothing for us, then, but to labor and wait till the thirty years have expired; watching meanwhile that these bonds are not again for a second or third time refunded; and that dwindling gold reserves and other pretexts are not, as recently, seized to fasten upon us still other bonds with a life-time of a generation stretching out before them.

Health on the Farm.

A few years ago the writer saw a cartoon, giving two views of the effect of country and city life upon health. It was hardly true to the facts—cartoons never are—but there was some unwholesome truth in it. At ten years of age the city boy was lank and pale, while the country boy was robust and ruddy. Fifty years afterward the city boy had developed into a straight backed man of aldermanic proportions, while the robust country boy had become a crooked and rheumatic old man. We farmers are prone to disregard the laws of health, making serious mistakes both in "theory and practice." By the courtesy of a physician's daughter, I have the manuscript of an interesting and practical paper on "Health on the Farm" prepared by her for a farmers' institute, and the privilege is granted me of making extracts from it for *Farm and Fireside* readers. They are practical, and can be made more helpful than anything the writer could say.

Many causes which produce disease are more or less under our control, and may be modified, prevented or avoided. All our efforts to have health by observing all the rules of hygiene will be of no avail if we are compelled to live in a house which stands on an unhealthy spot, with unhealthy surroundings. The home should be located on high or dry grounds that require no drainage. If such a location cannot be had, then the drainage of not only the cellar, but in the surrounding ground, should be the first thing done, and thoroughly done.

The drain from the kitchen door should not be simply a covered ditch, but should be made of drain-pipes which will carry everything to the end without leakage, and empty far away from the house. This drain should be washed out occasionally by allowing the water from the roof to run through it. No waste wash-water of any kind should be emptied near the house or near the well.

The house should be inclosed by a fence, to exclude all domestic animals. All farm animals, including fowls, are subject to diseases that may infect the human being. This is especially true of the cat. It is subject to consumption, diphtheria, and sore eyes. Any such animal showing the least sign of sickness should be immediately killed and cremated. It may avoid much trouble to know that the cat and the dog have been the medium of carrying contagious diseases from one member of the family to another, and from one house to another.

To eat properly we should have good teeth, and poor teeth are very often the cause of indigestion and its train of miseries and distresses. The parents and the older members of the family should keep an lookout for decay in the teeth of the younger mem-

bers, or better yet, they should be taken to the dentist at least once every year to have their teeth examined and repaired.

Bacteriologists tell us that we take many disease germs into our systems through the water or milk we drink, and that the germs are more numerous as the water in wells and springs gets low in dry weather. During epidemics of disease, especially during periods of low water, all the water for drinking purposes should be boiled. When we have springs or wells that receive no drainage from filthy surroundings, we are comparatively safe from diseased germs from this source.

It is during sleeping hours that we suffer most from vitiated air. With the close walls—almost airtight—and close-fitting windows of modern houses, we must arrange for ventilating our sleeping-rooms before retiring. There should be two openings to every bedroom for the circulation of air. Drafts should be avoided. When the wind blows, a window raised one inch will give as much pure air as it would entirely raised during a calm. If the wind blows directly against an open window, a screen should be used to prevent it from blowing over the bed.

Many neglect the bath because they do not fully understand its object. Too many of us think that we need to bathe only when the work we are engaged in, or the surroundings, is such that foreign matter comes in contact with our bodies and lodges there. While for common decency this matter should be washed from the surface of our bodies, yet it is the least harmful which lodges there. The excretions from the pores of the skin are much more poisonous and harmful. We must bathe regularly from childhood to old age to keep the pores of the skin open, if we would be healthy.

During the fall, winter, and spring months everyone should wear stout shoes that will prevent the feet from becoming wet or cold. This part of the body should receive the most careful attention, as it is the part most exposed to cold and dampness. While every other part of rooms is warm and dry, the floors are cold and exposed to drafts.

Finally, cheerfulness, good humor, and contentment are aids to good health. Health is wealth, and thus may we be wealthy, though farmers.—*Correspondent Farm and Fireside.*

Good Country Roads.

Every individual in this country who owns a horse or a bicycle has an active, living, personal interest in good roads, but the apathy with which many of them regard the subject is only another example of how "use doth work a habit in a man." At present many roads are in a frightful condition because of the narrow tires that cut up and grind out the country thoroughfare. Property owners shirk responsibility because it takes money to improve the highways, and many of them are so given to procrastination that they cannot bring themselves to take anything in hand that demands immediate attention.

In addition to this, most wagon wheels have narrow tires, which in itself is quite enough to paralyze at least some of the efforts towards reform.

There is no more urgent need in this country than strict attention to the condition of the roads; for a smooth, hard surface means larger loads, greater ease for the team, and much comfort for the driver.

Bad roads are expensive and annoying, and the only wonder is that communities are not sufficiently alive to their own interest to put the highways in order without interference of state or national authorities.—*New York Ledger.*

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WHAT SHOULD BE TAUGHT IN OUR AGRICULTURAL COLLEGES?*

BY PRESIDENT GEO. T. FAIRCHILD.

IN treating the subject, "What Shall Be Taught in Our Agricultural Colleges?" I shall make certain assumptions without taking your time in argument to prove them. To me they seem fundamentally grounded in the object of these colleges, as stated in the organic act of 1862.

First, I assume that we are to aim directly at the inspiration and cultivation of scientific modes of thought in agriculture among the multitude. No mere expert training of the few can open to the industrial classes the liberal education promised and provided for by Congress. These colleges must attract the multitudes to their halls.

Second, it is safe to assume that the results of genuine research and experiment by highly trained experts must be accepted and utilized by a body of educated farmers sufficiently alive to the interests involved to appreciate principles, and apply them with such modifications as sound understanding may require. The uneducated farmer asks for a rule of thumb, an explicit direction in detail; the educated farmer finds his rule for varying circumstances in the general principles established by research and experiment. Unless the colleges of agriculture reach a considerable body of farmers with their liberalizing education, there is little hope for a scientific agriculture.

Third, it is quite as evident that the moral and material support for scientific investigation of all phases of agriculture must come from such influences among the people, inspiring genuine desire for information. These fifty or more experiment stations will need the backing of a wide-awake, well-educated body of farmers in every State, or fail of support.

Fourth, I assume that the genuine experts for maintaining this rigid inquisition of Nature must be found by the sifting process of a strong college course, in line with agriculture. I see no other possible way of developing genuine talent and distributing it to the best effect, than to draw into colleges a strong body of quickened minds, and eliminate the weak and uncertain by consistent training in the very lines of thought to be followed later. The experience of the past few years emphasizes the importance of this sifting process.

Fifth, it is safe to assume that any course which fulfils these requirements must be truly educational, as well as instructive, and introductive, rather than exhaustive. The training of human faculties to expert use requires a touch that recognizes all the phases of Nature. Especially is this true in agriculture, where all of Nature's laws must be obeyed to rule in any. To pour facts into memory will serve little purpose until the relations of facts are mastered by exacting scientific study in more than one direction.

To meet the conditions thus assumed, I propose such plans as have already met a large measure of success, in offering to the farmers' sons and daughters, fresh from the country schools, a general course of study in line with the industries of their life. It is absolutely essential that the way from the farm to the college shall not be interrupted. The city high schools do not, and cannot, furnish the true line of training for the farm boy, whose every sympathy is in the field, and forest, and farm-yard. The trend of secondary schools is almost universally toward the needs of the city, in merchandise, manufactures, and professions. The inquisitive farm boy needs place for his natural development among the trees, grasses, crops, herds, and machinery, where all the great questions of his life are to be answered. The traditional curriculum has been the natural means of training in the use of books and the handling of men. The needed course must train in the handling of things and the use of Nature, with books as mere tools.

To accomplish these ends of such a course of study, I would have a symmetrical development of body, mind, and sentiment, along with the most feasible lines of growth, in my ideal farmer of liberal education. As fundamental in all study, a thorough training in the English language must stand first. If this is given through a comparison with other tongues, I shall not complain, but the result must be English rather than linguistic information or grammatical expertness.

For a good second in this liberal training, I place an

*Extracts from an Address by Pres. Fairchild before the College Section of the Association of American Agricultural Colleges and Experiment Stations, at the meeting in Washington, D. C., Nov. 10th, 1896.

exacting study of mathematical principles and distinct applications of these in quantitative sciences like chemistry and physics. Form and quantity in all fundamental relations must be grasped as the basis of the universe.

The third essential is a symmetrical development of the descriptive sciences and the philosophies of organic life, as illustrated in all phases of plant and animal economy upon the farm. Soil culture in farm, orchard, and gardens, the economy of farm machines, economic entomology, vegetable and animal pathology, must be so presented as to quicken the ingenuity of the student. Museum, class-room, and library must display the riches of information open to inquisitive thinkers along these lines.

A fourth line of training should be in the arts of expression. To think and to express thought are essentially coincident and mutually dependent. Completeness of expression, alone, insures completeness of ideas. Hence, all the definiteness that training in drawing, geometrical and freehand, can give should be coupled with good laboratory practice in all the sciences and explicit training in composition and public address. I believe no better aid to exact thinking can be given than by training the voice to express by precise modulations the multitudinous phases of thought concealed in words.

Last, but not least, I put a training in manual dexterity, with the shops, the farm, the garden, and the greenhouse as the means. Nothing develops ingenuity and gives confidence equal to some form of manual training. The more general this is in developing dexterity rather than limited skill, the better education it gives in scientific agriculture for either profit or investigation. The more continuous it is, the more perfect the habit of devising and doing becomes.

Such a course might be given in outline without departing far from the tested curriculum of the Kansas State Agricultural College.

This course of four strong years rightly leads to the degree of bachelor of science, and is worthy the name for subject matter as well as manner of training. From the numbers thus trained there will be a few whose bent of mind and love of research direct into definite lines of investigation. For these a variety of strong post-graduate courses of two or three years are provided with the master's degree at the end conferred for original work carefully presented in a thesis. My preference is that such a course, in our colleges of agriculture, should couple the science pursued with one of the arts illustrating its economic applications. It thus gains a technical character most conducive to energy of purpose and action. The Kansas College in this way couples botany or entomology with horticulture, and chemistry, or zoölogy with agriculture. The interest and the meaning of both are thus enhanced.

These students in technical courses should have every encouragement and aid in the use of the literature of their science through whatever language it comes. Comparatively little time is needed to gather the elements of grammar needed to read with understanding any book in a science already familiar; and with this object directly in view, a student learns with surprising ease.

In conclusion, I emphasize again the importance of so adjusting the studies in an agricultural college as to give a liberal education of body, mind, and sentiment in tune with the end to be served—a genuinely scientific agriculture and a body of agricultural science.

MECHANICAL AIDS IN FREEHAND DRAWING.

BY PROF. J. D. WALTERS.

AMONG the many unsolved or, at least, unsettled problems in teaching is that of the use of mechanical aids in freehand drawing, i. e., of stigmography. Some educators condemn the use of all mechanical aid; others advocate the judicious use of the ruler in diagramming; others would permit the pupil to measure the principal lines of the diagram before he begins the sketching of the figure proper; others would boldly use ruler and compass wherever these could serve in the execution of any part of the work, reasoning that this is really the method followed by the designer and mechanic in all practical work of the shop; while still others would draw all work upon paper ruled by mechanical means into squares or equilateral triangles. Everyone advances excellent reasons for his methods, and refers to prominent educators who have championed his particular views, or points to the real or imagined success which his means have produced in the classroom.

The battle of words has waged ever since Leon Battista Alberti, an Italian artist, 1397-1472, advised his pupils to construct and use the diastope or diagraph—an open, square frame, placed in a fixed, vertical position between the eye and the object, and divided by means of a few horizontal and vertical silk threads into a large number of equal squares.

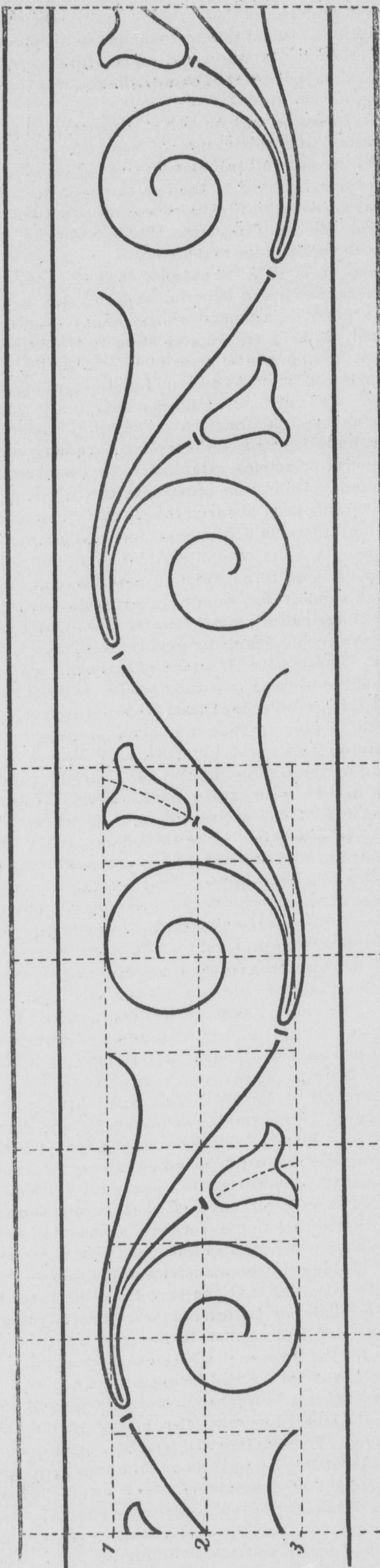
All, of course, plan to reach the same end, realizing at present that mere skill is not the main end to be sought in teaching drawing in the common schools. It is for this reason that all quote as their authority and champion Heinrich Pestalozzi, the father of modern pedagogy, 1746-1827, whose educational ideals they are intending to realize. Pestalozzi held that the study of real things, and especially of their form and color, was most effective in developing the observing and reasoning faculties of the young mind, and advocated drawing as the chief auxiliary to such systematic form study (*anschauungsunterricht*). He held that all instruction in matters of form should proceed upon geometry as the base, and advised the use of geometrical diagrams for all figures to be drawn. He insisted that the analysis of ornaments and objects made for the purpose of discovering their geometric base form (*grund form*), was really the most important and beneficial part of drawing, but he protested energetically against the use of all tools and line nets. He went even farther than this, and forbade the drawing of figures involving more than the straight line and the circle until the pupil should be able to draw these two with reasonable dexterity, holding that these, with their infinite number of possible combinations, might well occupy several years of school work. He reasoned that this would ultimately lead the child to compare, diagram, measure, and geometrize unconsciously all things and figures seen, and he held that one who had really learned to do this had gained all that the pursuit of any industrial or fine art could demand of him, aside of special skill. Pestalozzi was undoubtedly right in this theory. The fact is, however, that no course of school instruction has been framed to this day which does not pretend to realize what the great philosopher has pointed out as the end to be attained, and that no course has been able to realize fully what he demanded that the school should do.

During the first half of the present century, stigmography flourished all over Central Europe. F. Platz and F. H. Hillard, two German drawing teachers, the authors of courses of freehand drawing, became its chief advocates. Several works of the same character, though provided with printed dots instead of net lines, appeared during the fifties (Hertzer, Bombe, Hofman). In the United States, in 1873, Marcus Wilson published a series of four freehand textbooks containing only cross-ruled paper. The series were published by Harper and Brothers of New York, and owing to their "ill-directed" efforts, the work was generally used all over the Western States. A reaction came, however, chiefly through the efforts of Herman Grüber of Bremen and Jakob Hauselman of Switzerland. Grüber published the expert opinions of seventy medical specialists, showing that the continuous use of closely ruled paper was destructive to eyesight. Other defects of these systems, of which not less than forty were published by the year 1875, were discussed and pointed out by prominent educators. The governments of nearly a dozen European States prohibited the use of cross ruled studies and paper, and the method was gradually, though not wholly abandoned. Many prominent educators classed tintling of ornaments with stigmography, and demanded its prohibition in the school.

It would fill pages to speak in detail of the controversies concerning the use, in connection with freehand drawing, of the ruler, measuring slip, and compass. Hauselman permits the use of the ruler for all long diagram lines, but prohibits it for any other lines. Walter Smith, the father of American school drawing, permits the use of the measuring slip in testing the correctness of the diagram. Prang, White, and Thompson give printed outlines, axes, etc., as guide lines, for the use of the pupil. Bartholomew uses printed diagrams and advocates the employment by the pupil of the stenciled unit wherever repetitions occur in a surface design. In fact, very few, if any, of the teachers of freehand drawing demand of the pupil that he should do what is never done in practical workshop, i. e., produce straightness and roundness where these have to be relied upon, while writers on art education almost universally condemn such a practice. It seems that theory and practice are two different things, even in school work.

What are the methods followed by the drawing classes of the Kansas State Agricultural College? We are using here a series of drawing studies

designed by the writer of this article. The course is prepared in such a manner that the pupil must draw freehand all construction lines himself. In many figures, however, a simple geometrical outline is given, so as to assure the proper position of the figure upon the plate, and to give the pupil the required scale in a practical manner. The use of the ruler, compass, stencil, and measuring slip are prohibited. The accompanying illustration shows the



usual form of this work. The four black lines of the border are printed on the plate, but the diagram and all other lines beyond the given unit are required to be drawn by the pupil. Should less mature pupils work equally independent of stigmographical means? May ruled paper be used in the second and third school years?

The value of the experiment station is every day becoming to be more widely recognized. The scientific analysis of commercial fertilizers and the discovery of fraudulent productions is not the least valuable of the work being performed by the stations, and the farmer everywhere will feel that he has a friend indeed when he is thus saved from making a heavy expenditure by the vigilance of the men in charge of these important centers.—*Farmer's Voice*.

Ornamental Trees.

More judgment is required to make a proper selection of ornamental trees than to choose flowering plants. If the latter prove inferior or out of place, they can be quietly dug up and places filled with something else. Undesirable trees, however, are harder to get down, and their successors slow to grow. More than that, their large size and bold outline make them at once the most conspicuous objects in the home landscape, and every fault is brought out in glaring light, where every passerby may run, yet read.

A fine tree unites size with symmetry, grace with strength, beauty with ruggedness. A poor tree is an annoyance and an eyesore. Yet it is a curious fact that many who pride themselves on their fine grounds and will not allow an inferior flower yard-room, will choose for shade trees the poorest and faultiest of sorts.

There was once a professional man whose home grounds were his pride. A wide, grassy lawn sloped down to a rippling brook, and shaded by half a dozen glossy-leaved pin oaks of nature's painting. There were walks, and drives, rustic arbors, beds of flowers, and belts of shrubbery. A little more shade was needed, and what did this man do but set out a row of silver poplars, from sprouts that a neighbor had dug up and was about to throw away! During the good doctor's lifetime it was not so bad, but in time he and his wife were gathered to their fathers, and their old home passed into the hands of strangers. Soon the place seemed more like a wilderness than the spacious grounds of a country residence. The wistaria still twined over the veranda, the honeysuckle wreathed the arbor with its fragrant blossoms, and the stately peonies and lilies still raised their heads above the surrounding weeds; but the house was hidden and the lawn overgrown by a forest of young poplars that had sprung up by the hundreds. The owner at last awoke to the necessity of doing something. He commenced by cutting down the oaks, the only trees of merit on the premises, and finished by attacking the jungle of poplar sprouts. As he left all the old silver poplars, and many of the younger ones are coming on, in a short time his grounds will be in worse shape than ever. It is always distressing to see a place neglected that has once known good care, but the moral of this incident is that such a complete change for the worse could not have been possible had the good doctor chosen his trees as carefully as he did his flowers.

An ornamental tree should combine as many good qualities, and be as free from faults as possible. It should be a healthy, thrifty grower, of good habit and outline, and should have an abundance of beautiful foliage. These ought to be considered indispensable qualities in a lawn tree. It ought not to be short-lived, of scrubby habit, or one that continually litters the ground by a constant dropping of leaves, or that sprouts or suckers badly from the roots.

Fortunately, our tree nurseries and forests are full of ornamental trees that come fully up to the standard we have designated, so that there is no need of accepting inferior sorts. Of all these, no better one can be found than some of our native American trees. Our great elms, oaks, and beeches, and our fine-foliaged maples and birches, to say nothing of rarer but not less beautiful denizens of the forest, are unsurpassed by any Old World trees, although some of the latter are very fine. Why, then, are the wretched locusts, silver poplars, and box elders so much more commonly planted—trees that sprout, litter, and are dull of foliage?

We hear again and again the plea made that the best forest trees are so slow in growth that the planter never lives to see them good-sized trees. This is largely a mistake. If small or medium-sized young trees are chosen, carefully dug up so as to get good roots, and as carefully set out in good soil, far enough away from other trees to allow access to the sunshine, and room for the expansion of their branches, most of our indigenous trees will grow rapidly. Even the oak, the slowest growing of all, makes a good specimen on the lawn in half the time it does in the crowded, shaded forest. In laying out our own grounds, eleven years ago, a small oak stood exactly where we planned to have a shade tree. My "other half" thought it too small to waste time with, and was about to have it cut down, when I interceded for and saved it. Every year since then it has grown two or three feet in height and spread laterally in proportion, and is now a fine, symmetrical specimen of our best American oak, *Quercus palustris*, and with its shining, deep green foliage and pyramidal growth, is very attractive.

Most trees grow faster than this, maples particularly so. The handsomest tree in this village is a superb specimen of sugar maple, *Acer saccharinum*, standing near the public square. Soon after the war a young lady found it growing wild, took it up, and planted it where it now stands. It was so small that she used a case knife to dig the hole for its roots. As she was planting it, a young lawyer came along and poked unlimited fun at her "shade tree planted with a case-knife," and wanted to know how old she expected to be before she could sit beneath its shadow. The lawyer is still in the prime of life, and the lady but a middle-aged woman, but for nearly a score of years that tree has been the pride of the town, so dense is its shade and so perfect its development.

While we should be quick to seize upon all desirable ornamental planting, whatever its origin, we ought to give our preference to equally good native sorts, above those of foreign introduction. A commendable pride and love for one's country demands that we show the same regard for our native trees that the Englishman does for his oaks, or the Hindoo for his bo-tree.—*Lora S. LaMance, in Vick's Magazine*.

Calendar.

1896-97.
Fall Term—September 10th to December 19th.
Winter Term—January 5th to March 27th.
Spring Term—March 30th to June 10th.
June 10th, Commencement.
1897-98.
Fall Term—September 9th to December 18th.

To School Officers.

The College Loan Commissioner has funds now to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioner and the State Agricultural College. Address C. R. Noe, Loan Commissioner, Leon, Kan.

GENERAL LOCAL NOTES.

Mrs. Kedzie visited at Ottawa a few days during Christmas week.

Harriet Vandivert, Fourth-year, entertained a party of friends on the evening of December 29th.

Student editors for the INDUSTRIALIST for the Winter Term are Wilhelmine Spohr, R. W. Bishoff, and O. E. Noble.

A son was born at the home of Prof. Walters, December 23rd, to Prof. Arnold Emch and Hilda Walters-Emch, student in 1893-4.

Mrs. Grant McConnell of Menoken and Mrs. Nellie C. Williams of North Topeka, visited several days last week with the latter's sister, Mrs. Graham.

Assistant Horticulturist Sears has gone to Cornell University for a special course in horticulture and botany extending to September, at least. His place here will be filled by Isaac Jones, '93.

Prof. J. H. Lee, a teacher in the College from 1866 to 1875, and Mary C. Lee, '89, mourn the loss of wife and mother, who died at Kansas City, December 22nd, and was buried in Manhattan cemetery on the 24th.

Agnes Graham celebrated her twelfth birthday by the entertainment of a dozen of her little friends who ate freely of the birthday cake ornamented with a big figure 12, and presumably suffered a dozen aches in consequence.

Prof. Hitchcock attended the meeting of the Kansas Academy of Science at Topeka, last week, and read two papers—one on "Additions to the Grasses of Kansas," and another on "Notes on the Acologic Plant Geography of Manhattan." Prof. Lantz, Second Vice-President of the Academy, attended the sessions.

Mrs. Mary Todd, wife of Ambrose Todd, deceased, the first Superintendent of the Shops at this College (from 1871 to 1878), died at Topeka, December 18th, of apoplexy, and was buried in Manhattan cemetery on the 21st. The funeral service was conducted by Rev. J. H. Lee. Mrs. Todd leaves two sons—Albert, a member of the Class of 1872, later a graduate of West Point, now Lieutenant First U. S. Artillery, stationed at St. Augustine, Florida; and Irving, Fourth-year in 1877-8, Chaplain and teacher at Bethany College.

The Kansas Farmer in its report of the Oak Grange Institute, has these good words for the College delegation: "Prof. Georgeson of the Agricultural College read a very instructive paper on Steer-Feeding Experiments. It was one of the best papers read, illustrating a series of experiments in regard to the different kinds of feeding, shelter, etc. Mrs. Winchip gave a fine paper on Home Dress-making. Mrs. Winchip possesses the proper qualities to please listeners. A kindly manner, a pleasant address, made her remarks of double interest. It was received with much satisfaction. At 7:30 began the last session. Prof. Georgeson presented a splendid paper, Farming as a Factor in National Prosperity. Mr. Georgeson's remarks now and then, aside from the valuable papers presented, add greatly to the success of the institute."

GRADUATES AND FORMER STUDENTS.

I. A. Robertson, '96, is elected Superintendent of the Presbyterian Sunday School.

D. G. Robertson, '86, a lawyer of Chicago, mourns the loss of his daughter Vera, aged two years.

L. P. Brous, '86, teacher in the Kansas City (Kan.) Schools, spent the holidays with his parents in Manhattan.

John B. Harmon, '95, a prosperous farmer of Jefferson County, read an interesting paper at the Nortonville Farmers' Institute.

R. S. Kellogg, '96, of Russell, visited College friends for several days during the vacation and attended the Association at Topeka.

Elizabeth Edwards, '92, May Secrest, '92, and Ada Rice, '95, three of Randolph's able teachers, enjoyed a visit with College friends during the holidays.

A. A. Mills, '89, has changed his location and business, and is now in charge of a creamery at Kamas, Utah. He expects to do some editorial work in connection with his other duties.

W. E. Whaley, '86, special student at Chicago University and Instructor in history at South Side School, a preparatory school to the University, spent the holidays at home in Manhattan.

Mr. Asa Smith [Third-year in 1894-5] who has been visiting with his parents in Ontario for the past week returned home yesterday. He came overland on his wheel, leaving there Monday. It is about 125 miles. Mr. Smith, who is well known here and popular among our people, will have charge of the *Olive Leaf* during our trip east this winter in the interest of

the J. C. Hayes Olive Colony. Mr. Smith is a good printer, and will furnish the people a rattling newsy paper.—*Olive Leaf, Oceanside, California.*

G. K. Thompson, '93, has sold an interest in his paper, the *Blue Rapids Motor*, to Mr. A. J. Ulsh, formerly foreman of the *Manhattan Nationalist*.

J. J. Fryhofer, '96, of Atchison, was called to his home near Randolph, two weeks ago, by the death of his father, one of the early settlers on Fancy Creek.

The College acknowledges calls from the following graduates during the holidays: A. Dickens, G. K. Thompson, '93; C. A. Johnson, J. J. Johnson, R. J. Barnett, '95; A. C. Peck, E. G. Gibson, F. E. Uhl, G. W. Finley, W. A. Cavanaugh, '96.

A. H. Morgan, '96, stopped at the College a few days Christmas week en route to the Teachers' Association at Topeka. He is teaching the Greenwood School of well advanced pupils in Phillips County, but plans to farm on an extensive scale next year.

W. E. Smith, '93, is the author of an exhaustive paper on "Child Study" which was published in full in a recent issue of the *Manhattan Nationalist*. "Do We Teach Pupils to Think?" is the title of a good paper by Nora Fryhofer, '95, which is reproduced in the *Republic*.

F. J. Smith, '95, will next week issue the first number of a Populist paper at Russell, which place he and his wife, Laura McKeen-Smith, '95, will call home in the future. Mr. Smith's well-known love for journalism, backed by his sterling worth as a man and his training in the mechanical conduct of a newspaper office, will make his paper one of which the people of the short-grass region may well be proud.

The Kansas City *Times* says concerning the debut of Maud Whitney, Third-year in 1890-91: "Miss Maud E. Whitney, a Kansas City girl and pupil in Ebbels' Dramatic School, yesterday signed a contract with Mlle. Rhea's manager for the rest of the season. Miss Whitney has appeared in amateur plays in this city on a number of occasions, and is known as a young woman of talent, and a careful student of the drama. Her last appearance as an amateur will be made tomorrow evening at Music Hall, where she will be seen in 'Laureane, the Marble Dream,' at an entertainment given by Mr. Ebbels' pupils. A five minutes' conversation with Mlle. Rhea herself was all that was necessary, and Miss Whitney was engaged at once. She will begin rehearsing for youthful characters in Mlle. Rhea's plays, and will appear in the next city in which the company gives a performance."

The College Reunion at Topeka.

The reunion of the Agricultural College students and Faculty in attendance at the State Teachers' Association was held in the assembly room of the Topeka high school, Wednesday night, after the lecture by Henry Watterson.

The lateness of the hour—eleven o'clock—kept many from attending, but over sixty gathered to renew friendships and testify to their loyalty to Alma Mater. The program prepared by the Reunion committee was carried out.

H. W. Jones, '88, opened the exercises with a vocal solo, and being encored, responded pleasantly with Annie Laurie. Prof. Olin then gave a short talk upon the "Students' Duty to the World." He was followed by G. W. Smith, '93, with his own song, "Ever and Forever True." Prof. L. M. Ward, of Ottawa University, professor in this College from 1873 to 1883, then gave a short and earnest address, calling attention to the growth in facilities and objects of education. The graduate quartette sang an original song by Tacy Stokes, class of '98, after which President Fairchild had the "last words" as usual, and good and wholesome words they were, too. All joined in singing "Blest be the Tie," and the benediction was pronounced by President Fairchild.

The principal business of the reunion, the social, was soon cut short by the discovery that it was already "tomorrow morning," and all separated with good wishes for each other and Alma Mater, and renewed faith in the lasting pleasures of College life.

Supt. B. F. Nihart of Council Grove, professor here for three years, was a pleasant caller at Headquarters in Representative Hall.

Among those present at the Association but prevented from attending the reunion was Rev. Joseph Denison, first president of the Agricultural College.

GRADUATES PRESENT.

W. H. Olin, '89, Principal High School, Ottawa; H. A. Darnell, '92, Principal of schools, Gardner; C. D. Adams, '95, teacher, Perry; W. E. Whaley, '86, South Side Academy, Chicago, Ill.; W. H. Phipps, '95, Principal of schools, Abilene; Elsie Crump, '95, teacher in city schools, Manhattan; Lucy Ellis, '95, teacher, Marysville; Ruth Ellis, '96, printer, Topeka; Lucy H. Waters, '94, teacher, Manhattan; Delpha M. Hoop, '91, teacher, Manhattan; Bertha Helen Bacheller, '91, teacher, Manhattan; Lora L. Waters, '88, teacher, Junction City; Lora L. Waters, '88, teacher, ninth grade, Manhattan; A. H. Morgan, '96, teacher, Hillside; Nora Fryhofer, '95, teacher, Randolph; Geo. W. Smith, '93, Principal High School, Minneapolis; Florence R. Corbett, '95, teacher, Ogden; John Patten, '95, farming, Silver Lake; Hortense Harman, '95, Valley Falls; May Harman, '93, teacher, Valley Falls; S. N. Peck, '87, A. T. & S. F. R. R. Shops, Topeka; D. W. Wickman, '92, A. T. & S. F. General Office, Topeka; B. H. Pugh,

'92, farmer, Topeka; C. D. McCauley, '96, draughtsman, A. T. & S. F. Shops, Topeka.

Elizabeth Edwards, '92, First Primary, Randolph; May Secrest, '92, Primary teacher, Randolph; R. S. Kellogg, '96, teacher, Fay; Flora E. Wiest, '91, teacher, May Day; H. W. Jones, '88, Principal of Schools, Alma, Kansas; J. T. Willard, '83, Professor, Kansas State Agricultural College, Manhattan; Jennie R. Smith, '94, teacher Fifth-grade, Manhattan; Mary E. Bower, '83, Manhattan; Marion Jones, '96, Manhattan; Geo. A. Dean, '95, Topeka; Ethel F. Patten, '95, Silver Lake; Geo. C. Hall, '96, teacher, Hoyt, E. J. Abell, '95, Principal of Schools, Scandia; Gertrude J. Havens, '96, nurse, Topeka; Chas. C. Smith, '94, Principal of schools, Wabunsee; R. J. Barnett, '95, teacher, Jamestown; Albert Dickens, '93, teacher, Bushton; F. W. Ames, '94, Morgan Park, Illinois.

Seventeen Years of Growth.

I have now been nearly 17 years in charge of this work, with a constantly increasing interest and encouragement. During this period, almost exactly one-half the history of the College, the improvements have been marked. The faculty proper has exactly doubled, while the whole number of officers and expert assistants has increased from 15 to 43. The annual attendance of students, in spite of greater requirements for admission and in the course, has nearly tripled, while the number in classes above the first year in the course, then comparatively elementary, has risen from 93 to 291. The graduating class has advanced from 9 to 66, and the whole number of graduates from 49 to 520. Of postgraduate students in science and arts, there were then none; now there are 32, most of whom seek a master's degree.

The material advancement of the College in equipment and apparatus is also noticeable. The report of 1879 showed an invested endowment of \$256,425.79 and an income from all sources of \$20,402.64; the present report gives the invested endowment at \$500,956.39, and a total income for College and experiment station of \$73,656.37. Buildings and grounds were then valued at \$61,445, and the total inventory was \$86,008.76; now the buildings and grounds, counting only additions, without estimating enhanced value of property or improvements by extensive plantations, are worth \$238,610, and the total inventory is \$401,544.26.

The chief gratification is found in the fact that this growth has been chiefly in the departments of industrial training. Then, while all students were required to take some training in the arts, no systematic course was provided in any; now, regular classes are assigned at stated times to agriculture, horticulture, woodwork, sewing, and household economy. Then the total equipment of the farm department was about \$11,000, with an annual expenditure of \$2,000; now it uses property, aside from the land, worth \$30,000, and expends about \$7,000. The horticultural department, then combined with all the natural sciences except geology, chemistry, and physics, has grown into entire separation from the sciences, increasing its equipment from \$800 to \$17,100, and its annual expenditure from about \$1,000 to \$3,000. The mechanical department has had a growth quite as marked in figures, though more recent, from an equipment worth \$1,145 to one worth \$24,940, and from an annual expenditure of \$2,000 to one of \$6,600. These figures for expenditures do not include any credit for receipts.

Other departments have made equally satisfactory growth, though not to be noted so well in dollars and cents. This is especially true of the various chairs of science and that of industrial art. Some have quite outgrown their accommodations, and need room and equipment fit for their work, notably the departments of household economy and sewing, physics, and chemistry, all of which are closely related to the practical purposes of the College.

It is gratifying to feel that these years have raised the rank of the College among similar institutions in the country to the first place in attendance of students and to acknowledged repute for its high standing of work for the industries. Within our own State, its consistent and earnest work has met with the approbation of the people, so that its single four years' course draws more students than any four years' course in all the institutions of the State.

The above facts are enumerated in no boasting spirit, but simply to emphasize the present importance of the interests presented, and the need of earnest effort on the part of all interested in maintaining this wholesome development along the lines of productive industry.

During all these years the policy has been constant of maintaining with manual training a single course of study in the natural sciences, with special adaptation to the industries, attended by sound discipline in mathematics, logic, and philosophy, good training in English language and literature, and a fair introduction to history, political and economic science. The arrangement of studies has been adjusted to strictest economy of time and closest union with the common schools of the State, so that, whether the student remained through the course or not, he could gain the most possible in the time spent. For this reason there has been little demand for short special courses in agriculture or horticulture, the whole atmosphere of the place being in keeping with the pursuit of these arts. Technical courses for graduates and advanced students have been provided as needed, much to the advantage of the College as well as the students. Many of these are giving excellent assistance in their specialties, and are fitting themselves for places in other schools and experiment stations.—From President Fairchild's *Biennial Report*.

KANSAS STATE BOARD OF AGRICULTURE.

Program for the Twenty-sixth Annual Meeting to be Held in Topeka, January 13th to 15th.

WEDNESDAY, JANUARY 13TH, 1897.

Afternoon Session.—Opening at 4 o'clock.

Roll Call.

Report of Committee on Credentials.
Reading of Minutes of Preceding Meeting.
Report of Officers.

Evening Session—7:30 o'clock.

Address of Welcome Gov. J. W. Leedy.
Response The President, Thos. M. Potter.
The Longevity of Farms T. W. Harrison, Topeka.
Western Kansas: Her Needs and Possibilities
Chas. E. Lobdell, Dighton.
Some Views of a Packer Geo. P. Dold, Wichita.

THURSDAY, JANUARY 14.

Morning Session—9:30 o'clock.

External Diseases of the Hog, and Their Treatment
Wm. Belshaw, Seneca.
The Necessity for Meat Inspection
Dr. C. J. Sihler, Kansas City.

Some Problems of Cattle-feeding R. M. Allen, Ames, Neb.
Afternoon Session—1:30 o'clock.

Silos and Ensilage Prof. H. J. Waters, of
Missouri Agricultural College, Columbia.
Twelve Years' Experience and Observation with
Sheep in Western Kansas A. T. Howden, Jetmore.

Forty Years of Kansas Corn-raising W. D. Rippey, Topeka.
Evening Session—7:30 o'clock.

Wheats and Wheat-growing in Kansas
C. B. Hoffman, Enterprise.
Some of the Things I Have Unlearned
Senator W. A. Harris, Linwood.

FRIDAY, JANUARY 15.

Morning Session—9:30 o'clock.

From Pig to Market C. A. Grutzmacher, Wheaton.
Utility and Management of County Fairs
Secretary Chas. H. Ridgway, Ottawa.

Fairs and Expositions: Their Origin, Uses, and Management
Secretary R. W. Furnas, Brownville, Neb.
Afternoon Session—1:30 o'clock.

Election of Officers and Members.

Irrigation Possibilities and Probabilities of Western
Kansas and Nebraska I. A. Fort, North Platte, Neb.
Moisture and Aridity John Hay, Junction City.

Evening Session—7:30 o'clock.

Agricultural Education in the Common
Schools Emerson T. Abbott, St. Joseph, Mo.
Country Clubs Mrs. Willis Lord Moore, Hutchinson.
The Improved Stock-Breeders' Association, the State Swine-
Breeders' Association, the State Poultry Association, the State
Temperance Union, the State Women's Christian Temperance
Union, and the Good Templars will hold their regular annual
meetings during the same week as the State Board of Agriculture.

All railroad lines have granted an open rate of one fare for
round-trip tickets for all these meetings from all points in
Kansas, also from Kansas City and St. Joseph, Mo., and tickets
will be sold January 9 to 16, inclusive, good for return until
including January 18, 1897.

Rates at Topeka hotels will, as usual, be reasonable, and ac-
commodations can be secured either at hotels or less-expensive
boarding-houses at prices suited to all classes.

Farmers' Institutes.

Institutes have been appointed and assignments
made from the College as follows:—

Overbrook, Osage County, January 21st and 22nd;
Professors Mayo and White.

Wellsville, Franklin County, January 22nd and
23rd; Professors Georgeson and Will.

Peabody, Marion County, January 28th and 29th;
Professors Walters and Mason.

Hutchinson, Reno County, February 4th and 5th;
Professors Hitchcock and Nichols.

Berryton, Shawnee County, February 11th and
12th; Secy. Graham and Mrs. Kedzie.

Haven, Reno County, February 11th and 12th; Pro-
fessors Lantz and Popenoe.

Stockton, Rooks County, February 4th and 5th;
Professors Hood and Burtis.

Pleasanton, Linn County, January 7th and 8th;
Professors Walters and Georgeson.

Newton, Harvey County, February 4th and 5th;
President Fairchild and Mrs. Kedzie.

Concordia, Cloud County, January 28th and 29th;
Professors Graham and Mayo.

Pointers for Thinkers and Workers.

The time has now come when the need of the aid of
agricultural science is being appreciated to a limited
extent by the American farmer. Agricultural science
has, since the time of Liebig, made wonderful ad-
vances in every line of agricultural work. In some re-
spects, he was not unlike the one whose voice was
crying in the wilderness, heralding the incoming of
a new dispensation.

To-day, the educated farmer is more successful
than the one who reads but little, thinks less, and
relies mainly on his muscle. It will no longer do for
us to "ensphere ourselves within the prickles of our
own prejudices" either as Americans or individuals.

The old world teems with object lessons, which, if
studied and heeded, would be of value to us in the
new. Germany has appreciated and applied the as-
certained facts of scientific agriculture more success-
fully and to a greater extent than any other nation. It
is admitted now, that in both agriculture and manu-
factures, the German people are making the greatest
advances, and it is because of the great attention
paid in that country to technical education. In fact,
the advance has been so great that Germany is now
contesting with England and France for the suprem-
acy in both manufactures and commerce. This

advance has been so great that it has become a mat-
ter of public concern in England, and now forms one
of the chief topics of discussion, and their chief
writers and speakers admit that it is due to the great
attention that is paid to technical education in Ger-
many, and that it can only be met successfully by in-
creased technical education in England.

There is no productive machine to which educated
intelligence can be better or more profitably applied
than the farm. There is no wider range of knowl-
edge called for than that which may be applied to
agricultural operations. The chemistry of the soil
itself is a great study. Special fertilization is
another. The knowledge and mastery of the secrets
of animal life, and proper handling, is another. The
needs of plant life is another. The progress which
even some of the most elementary branches of agri-
cultural science has made in recent years has been
very great. Thanks to the well-directed and ener-
getic efforts in the line of research by numerous
German, French, English, and American investiga-
tors, agricultural chemistry has at last been placed
on a firm foundation of facts and principles.

The widening range of the problem of progressive
agriculture imperatively demands a larger education
on the part of those who till the soil. Our diversity
of soil and climate ought to enable us to maintain our
supremacy in agriculture. We can maintain it by
the higher education of the agricultural population.

Heretofore, we have held our own by reason of the
vast amount of virgin soil. By the most reckless
system of cultivation, we have reached the point
where we must now turn our attention at once to the
restoration of the elements of fertility of which the
soil has been persistently robbed. The restoration of
fertility can only be brought about by giving the
farmer an intelligent appreciation of the laws and
principles involved in vegetable and animal nutrition.
The hope of the future of American farming rests
with our young men, who, having gained some fami-
liarity with the practical details of farm work, will be
led to enter upon a course of scientific investigation
in the ever-widening field of agricultural science.—
Washington Post.

A Menace, and the Remedy.

One of the best known farmers of Illinois called
upon the editor the other day, and in the course of
conversation said: "We have more to fear from the
growing tendency of elderly and well-to-do farmers
to move to town and rent out their farms than the
average man has any notion of. What does the
man who rents for a year or two care about preserv-
ing the fertility of the soil? What does he care
about building up the material and moral interests of
the community of which he is but temporarily a part?
There is a serious menace to the agricultural inter-
ests of the state in this tendency of the latter day,
and the practice should be discouraged."

Just how the practice may be discouraged was not
so clear. That legislation could not reach it he ad-
mitted, and the right of the land owner to do as he
would with his land could not be gainsaid.

To us it seems that the remedy lies in great part
in making farm life attractive that there will be no
desire on the part of the farmer to leave it. It is
violating no confidence to say that this is just what
the gentleman above quoted has done. He is a reader,
a student, and he recognizes the great opportunities
for mental advancement as well as for financial gain
in a higher order of farming. Then the young folks
influence the tendency to leave the farm. Why? Be-
cause there is not sufficient variety to their mode of
living, and they long for intellectual excitement and
social enjoyment.

These can be secured only through a broadening
view of agricultural life and preparation for it, as the
physician or lawyer prepares himself for his profes-
sion. And where can this be secured except in the
agricultural college? When the boys and girls of
the farm come to learn that physics and chemistry,
biology and entomology, and the chemical sciences
have to do with the successful conduct of the farm,
they will find a new field for intellectual research in
their daily vocation with all its commonplaces, and
the farm will no longer be a prison, but the centre of
attraction for all members of the family. There will
be few farms for rent then, and the danger our good
friend sees will no longer exist.—*Farmer's Voice.*

The Coming Motive Power.

The electric locomotive will replace the steam loco-
motive as soon as the problem of producing electricity
on a large scale, economically, is solved. This is a
statement of a prominent official of the Baldwin
Locomotive works of Philadelphia. Speaking on the
subject, the official said: "It is but a question of
time when electric locomotives will be used to haul
passenger and freight trains on all the various trunk
lines in the United States, if not in the world, and in
order to ascertain just what can be done in that
direction we have built an electric locomotive, which,
provided it is run on tracks of proper weight, will be
able to develop a speed equal to more than 100 miles
per hour. It is well known that electric locomotives
have been built and operated with success, there be-
ing two or three in the service of the Baltimore &
Ohio Railroad company at the Belt line tunnel in
Baltimore, and at one other place in that city, where
they have performed all that the contract stipulated
they should do. These are all run by the trolley
system, which, for very heavy trains and long dis-
tances, as for instance, between Washington and
Philadelphia, is considered impracticable."

Winter Evenings on the Farm.

Winter evenings on the farm may be made a source
of blessing to the young people of the farm home,
or they may be frittered away so that when they are
gone there will be nothing to show for the opportuni-
ties which they have brought. Parents can do much
to encourage the improvement of these opportunities
on the part of their children, and they do well to see
to it that they do not neglect this great responsibility.

It is acknowledged on all sides that the farm is a
grand place for laying the foundations of character.
But we do well to remember that even on farms
criminals may be grown. The chances that such
results will follow are reduced to a minimum if prop-
er oversight is given to the family. While such
oversight should be constant and unfailing, there
are times when it may accomplish more than at other
seasons, and prominent among these are the long
evenings of the winter, when parents and children
have so much time to spend together.

The outside work of the day is over. The children
have come home from school. Their evening chores,
such as carrying in wood and feeding the chickens,
are completed. The supper has been eaten, and two
or three hours are available before it is time for
sleeping. These hours should be regarded as precious
by the parents. They are hours which, if rightly
spent, will be spent in helping to shape the character
of the future judges, legislators, and teachers of the
commonwealth, or all history is false. Let the work,
therefore, be well done. Let it be patiently done.
The results which hang upon it are far-reaching, if
not, indeed, momentous.

No such golden opportunities come to the parents
in the city, or, if they do, they come but seldom.
Many of the fathers there must needs look after their
work. When not thus engaged, some are tempted to
attend this meeting or that. The children, all too
frequently, cannot resist the attractions of the side-
walk or those of some entertainment; hence this pre-
cious season for character building is measurably
lost. In order that the young people of the farm may
duly improve their winter evenings, give them every
chance so to improve them. Give them books and
magazines as bright as the blazing fire beyond the
hearthstone. Make sure that they have the opportu-
nity to read from papers and books which treat of
farming, and give them good ones. It may be an-
swered that this means outlay. It does, but it is
profitable outlay, and such entertainment should be
furnished, even though sacrifice should have to be
made in some other direction to have it thus.

When a young lad becomes interested in agricul-
tural literature he is not likely to leave the farm.
His love for the calling will increase, and his interest
will deepen until it moors him, rock-like, to the calling
of his fathers.

Young people of the farm, don't think lightly of
your opportunities. The winter evenings, as they
pass, one by one, will have more of a bearing on your
fortunes, than you shall, probably, ever know. Then
use them well. Don't allow them to pass without
improving them. Some are so foolish as to fritter
them away, or to spend them in idle slumber. The
porcupine is capable of doing that. Young people of
the farm, rise superior to the porcupine in the hus-
banding of time.

But, you answer, you have school studies to attend
to. That is very true, and it is well that it is so.
Young people who have no studies during winter
evenings are not likely to amount to much when they
enter upon the work of life. They will, probably,
not get much above hewing wood and drawing water.
But try to get a part of the evening for reading the
agricultural papers and agricultural books. Agricul-
ture is a study so high that you will never see over it,
so deep that you will never fathom it, and so broad
that you will never get to the other side of it.

Precious and priceless winter evenings! Watch
them as they pass. They may seem long, but they
are not too long for young people who want to pre-
pare for the great work of life. They may seem to
be many, but they are not too many. They may seem
to linger, but it will not be very long until they, all
of them, shall have been numbered with the past.
Then use them as they should be used, and great
will be the harvest, some time, that will come from
such a sowing.—*Canadian Farm Journal.*

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FURTHER EXPERIENCE WITH SOY BEANS.

BY PROF. C. C. GEORGESON.

THE soy bean not only continues to flourish, but is more and more appreciated as its virtues come to light. We have grown several acres yearly during the last six years. Though some seasons have caused other crops to fail, the soy bean crop has never failed completely. In the drought-stricken year of 1894, the yield was only about four bushels per acre, but even this was better than a failure. In 1895, they yielded 18.5 bushels per acre. They were seeded that year on May 31st, and harvested August 16th. In 1896, the main crop was seeded May 19th and harvested August 31st, producing a yield of sixteen bushels per acre.

Perhaps the most valuable feature of this crop is that it can be grown as a catch crop on wheat or oats ground after these crops are harvested. We have, for several years, raised fair crops of beans as a second crop following wheat and oats. In 1896, we started to plow the wheat ground June 22nd, immediately after the wheat was thrashed. The beans were seeded June 27th; they were cultivated once, early in July; and by September 28th they had matured a crop of beans which, after being cleaned in a fanning mill, averaged 8.22 bushels per acre of fine quality. A second planting was made July 11th. This crop was likewise cultivated once. On September 28th, there was danger of frost, and the crop was cut for hay, the beans in the pod being somewhat more than half grown. This crop was light, being only .61 tons per acre, but when we consider the feeding quality of this hay, it is still a valuable crop. A third planting was made July 25th, which was likewise cut for hay in the latter part of September. The yield was .53 tons per acre. A patch of this planting was left to be killed by the frost, but the first light freezes did not affect it, and the crop was ripe on October 17th, and yielded 5.15 bushels ripe clean seed per acre. All of these beans were grown on a poor hillside which has been cropped continuously for upwards of twenty years without ever being manured. The yields are, therefore, not a fair index of what could be expected on rich soil. We have, so far, had no difficulty in selling the beans we could spare at \$2 or more a bushel.

In feeding value, the soy bean is ahead of linseed meal and every kind of mill stuff. The only other concentrated feed on the market of equal value is cotton-seed meal, and this material has serious objections as a general feed stuff because of its poisonous nature when fed to pigs. (See bulletin No. 53 of this Station).

TABLE SHOWING COMPOSITION OF WHEAT BRAN, LINSEED MEAL, AND SOY BEANS.

FEEDING STUFFS	PERCENTAGE COMPOSITION.						PER CENT DIGESTIBLE MATTER.			
	Water.	Ash.	Crude Protein.	Crude Fiber.	Nitrogen, Free Extract.	Ether Extract.	Organic Matter.	Crude Protein.	Carbohydrates.	Ether Extract.
Wheat Bran— Roller Process....	12.0	5.6	16.1	8.4	53.7	4.2	82.4	12.6	44.1	2.9
Linseed Meal— Old Process.	9.2	5.7	32.9	8.9	35.4	7.9	85.1	27.2	32.8	7.1
Soy Beans.....	10.8	4.7	34.0	4.8	28.8	16.9	84.5	29.6	17.9	15.9

The above table gives the total composition, also the percent of digestible matter of soy beans, linseed meal, and wheat bran (roller process.) It will be seen that the soy bean contains 29.6 pounds digestible protein in a 100 pounds of the beans, whereas old process linseed meal contains 27.2 per cent protein, and further, that the percent of fat is twice that of the linseed meal. As compared with bran, the soy bean contains nearly two and a half times as much protein and more than five times as much fat as the bran does.

As to its actual feeding value, the experiment in pig feeding, reported in Bulletin No. 61 of this Station, gives us a pretty good idea. It was found in that experiment that a lot of three pigs, which were fed for 126 days on a ration consisting for the first eleven weeks of Kaffir corn meal alone, and the last seven weeks on Kaffir corn meal and shorts, gained a total of 191 pounds; while a similar lot, fed two-thirds Kaffir corn meal and one-third soy bean meal gained 547 pounds in the same time. Another lot of three pigs, which was fed on corn meal for the first eleven weeks of the experiment and a mixture of two-thirds

corn meal and one-third shorts for the last seven weeks of the experiment, made a total gain of 306 pounds in 126 days, while a similar lot of three pigs, fed on two-thirds corn meal and one-third soy bean meal throughout the experiment gained 554 pounds in the same time. The largely increased gains in these pigs must be credited chiefly to the soy bean meal. We have not, as yet, had beans enough to use them in feeding steers, but an experiment in this line is contemplated in the near future.

The soy beans cannot be grown successfully without cultivation. They should be planted in rows at the rate of three pecks to a bushel of seed per acre, and they should be cultivated a few times to keep down the weeds and to moisten the soil. They do not grow well when broadcasted, as we have ascertained by experiment. We plant them with an ordinary grain drill, stopping up three holes and leaving the first and fifth open. This puts the rows thirty-two inches apart, which is ample space to admit of cultivation; where the growth is not rank, twenty-four inches is far enough between the rows.

Those of the farmers in Kansas who desire to try the soy bean will be furnished a sample of these beans free if they will pay transportation. Twenty cents in stamps will carry a quart of the seed through the mail, and if those who desire to try them will send that amount in stamps to the Farm Department, the beans will be forwarded to the applicant by an early mail. This applies to Kansas farmers only.

BOOKS AND CHILDREN

BY ALICE RUPP.

ONE cannot visit the capital city during the holiday season, even to assimilate knowledge and get new ideas from the ably prepared papers read before the State Teachers' Association, to say nothing of the rich treat given in the good lectures, without sacrificing some time to the beautiful display of books made by various dealers. Kellam's is a perfect "Wonderland of books." Here, in countless numbers, are books of the purest and best, books medium, books poor, and presumably books bad, though of this last named class I saw none—perhaps due to the fact that my interest was centered elsewhere.

Ever since the days of Moses books have been written. They were invented and have been cultivated to supply certain needs of man, and are as essential to his mental, moral, and spiritual growth as fruits, vegetables, meats, etc. are to his physical growth.

What rapid strides a few years have produced in the number, variety, and cheapness of books. In yesteryear, the first-class bookseller numbered his wares by the fifty or one hundred volumes; not so today. In this age the "itch for scribbling" is an epidemic that is no respecter of persons; hence books spring from the presses and publishers like mushrooms in a forest, and the wide-awake merchant, that he may cater to the various tastes of a general public, must carry in stock an incalculable number of volumes, as the holiday season clearly and forcibly demonstrated. However, what impressed me most during a brief visit in this "Wonderland of Books" was the number and variety of juvenile volumes. In this department are hosts of books, magazines, and papers especially adapted to the child at every stage of mental development, till the surfeited shelves positively seem to groan under their weight of infantile knowledge. The demand surely occasions the supply, so that millions of these books, magazines, and papers each year find their way to the homes of the little people, or to the public libraries where they are almost, if not quite, as accessible. They cover the whole scope of child interest. Morals, manners, and information are all provided for. Poor little heads are set a-nodding and a-bobbing over the printed page almost as soon as the baby eyes are open—till the ejaculation is forced from our sympathetic hearts, "God pity the little ones on these closing afternoons of the nineteenth century."

In the homes of some of my friends are found these little people, whom Santa brought an average of six volumes each. Just think of it! And the little people are already absorbing, with keen interest and untiring zeal, the knowledge contained on the printed page. This age has been termed the "age of fads," and it really seems a fad among the youngsters to be known by the honorary title of "a great hand to read." We meet them everywhere, these little people, with the knowing, tired look on their little faces, eyes heavy, and sometimes step inelastic, because they will strenuously persist in poring over their

books when they should be in dreamland or out at play. Talk to them on their fad, "books," and with a degree of modest pride they tell you they have read all of that series and liked it "pretty well," or were greatly interested in a certain history of travels, or found much pleasure in the biography of this or that great man, till the hearer's heart aches for the strength squandered. Some will smile, but the fact is not disputed, the strength is truly squandered, as the knowledge gained from travel, biography, or weak solutions of science and natural history is but a poor exchange for the vitality filched by them from the little bodies.

It is a psychological truth that the mind develops faster than the body till the sixth year is reached; therefore it would seem, till the child reaches the school age, the baby head has quite enough to do to assimilate the facts that nature, that reality, thrusts upon him, and the body should gambol and skip in regular lamb fashion, that it may grow and keep pace with the mental development. He enters school. Here the lessons claim all his mental vigor, so that outside reading is an imposition. However, times change, fashions change, and the methods of parents change. We number among our friends many well-educated, intelligent people, who, in their school days, were never allowed to read a book except in vacation time. Not so with the children of today. In this progressive nineteenth century the little boys must wear glasses so that the weak little eyes may be able to spend twelve hours out of the twenty-four poring over the printed page; while little girls no longer make doll dresses, mud pies, and play at visiting. All this is discouraged in the little ladies that they may husband the time for conning wisdom from interminable printed reservoirs.

I would not dispute the fact that the love of knowledge is a precious possession, but are there not other and more satisfactory methods of instilling it into the baby minds than by surfeiting them with books? Children are veritable interrogation points, and rightly so. With what intense interest they listen, eyes as well as ears distended to catch every word of explanation as given by parent, teacher, or friend. These oral answers are the agencies which develop the child mind and implant a love of knowledge. The spoken word carries with it an influence of infinitely more weight than does the printed page; then, too, it taxes neither the mental nor the physical strength of the little fellow.

To me, it seems that too much care cannot be exercised in the collection of books for a child's library. Books surcharged with information are usually such "solid" reading as to be completely beyond the child's understanding; hence, as a natural sequence are uninteresting and irksome, or else they are so diluted in their simplicity that they merely perplex but do not satisfy the eager little heads. At best, these child books are but a means of amusement for children. This negative sort of amusement seems infinitely more disastrous than good healthy play in the fresh air and warm sunshine; in fact, a skim on skates or sleds on a blustery day like this, Jan. 4, 1897, will but fill the cheeks with roses, the eyes with dancing mischief, and the bodies with agility, if the little people are properly protected and do not remain too long in the chilly atmosphere.

Really, now, it instills neither good temper, industry, nor independence into a boy to let him spend hours and hours over the prosaic imaginings that fill up the great volume of children's books: rather does it subdue his natural, wild spirits, makes him priggish, self-conscious, morose; for a child who lives the life of a recluse is not apt to develop genial qualities.

However, taking all things into consideration, there is little need for worry or fear. Boys are boys, and the natural boy is pretty deeply implanted, even in the sophisticated youngsters of these progressive "faddist" days with all the taming influence which the childish books can exert. The coming man is still strong in his commendable and troublesome instinct to be noisy and rough, to prefer the outside of the house to the inside; to find more real, wholesome pleasure in the dirty, ignorant small boy of the neighborhood than in the cleanest, wisest little man; in a word, to enjoy the real, to demand the regular boy life itself, not its counterfeit presentment.

An eminent physician is quoted as saying that "not within two hundred years has there been any one thing which has so benefited mankind as the invention of the bicycle," that "thousands upon thousands of men and women, who till within a few years never got any outdoor exercise to speak of, are now devoting half their time to healthy recreation, are strengthening and developing their bodies, and are not only reaping benefit to themselves, but are preparing the way for future generations which will be born of healthy parents."

PLAN OF THE BOOK SHELVES IN THE LIBRARY.

Scientific Periodicals 500	Science 500	Science 500	18	19	Mathematics 510	Scientific American 505
Public Documents			17	20	Astronomy 520	Physics 530
					Engineering 620	
				21	Geology 550	Chemistry 540
				22	Geology 550	Biology 570
						Botany 580
				23	Zoology 590	Inventions 600
				24	Medicine 610	Veterinary 619
						Agriculture 630
				25	Agricultural Periodicals 630.5	
				26	Agricultural Periodicals	Dairy 634
						Forestry 636
				27	Horticultural Reports	Garden Periodicals
				28		Agricultural Reports
				29	Experiment Station Report	Agricultural Reports
				30		Architecture 720
						Art and Music
				31		American Literature 800
				32	English Literature 820	
				33	Travels 910	French Lit 840
						Greek Lit 880
						Ancient History 930
				34	Travels	Rome 938
						Greek Hist 937
						Eng Hist 942
				35	U. S. History	J. S. Hist 970
					Rebellion	N. Am. Hist 970
					Records	French Hist 944
				36		Hist of N. A. States 974
						Statesmen

WEST.

HELPS TO THE USE OF THE LIBRARY.

BY JULIA R. PEARCE.

"TO whom it may concern" are addressed these few suggestions as to how to find material in the College Library. We shall have occasion sometimes to refer to the location of a book, and in doing so will speak of Case 1 or 2, and so on (see diagram). In the Library, these numbers will be found in prominent gilt figures on the ends of the iron stacks, beginning with 1 on your left as you enter at the northwest door.

ENCYCLOPEDIAS.

Those of a general nature are in Case 1. Among these will be found *Chamber's*, *Johnson's*, and the *Britannica*, and several smaller encyclopedias.

Matson's References for Literary Workers is a list of questions suitable for debate with a bibliography for both sides of the question.

Familiar Allusions and *Reader's Hand-book* explain the allusions in literature to celebrated statues, ruins, streets, paintings, ships, clubs, churches, natural curiosities, etc.

These are all in Case 1. Encyclopedias of special subjects are to be found on the shelves with other books of the same subject. For instance, Dictionary of Religious Knowledge is on the shelves with the religious works in 4 and 5. The Encyclopedia of Chemistry is in 21, and so on.

DICTIONARIES.

Century in 9 and 10, with a prominent label to show its location.

Standard, at the south end of the reading counter.

LIBRARY REFERENCE ATLAS

At the north end of the same counter.

Earth and its Inhabitants (33—ask.)

MAGAZINES.

A complete index to all the magazines in the library up to date is to be found on the table at the west end of the room. It consists of what is known as

Poole's Index, which indexes all the leading magazines up to 1895. This is carried on from 1895 to June 1896 by a small card catalogue in a box labeled

Index to Current Literature, and from June, 1896, up to date in a pamphlet kept on the same table called

Cumulative Index to Periodicals. The last numbers of the magazines will be found in a wooden case on the south side of the west room, and older numbers not yet bound are kept in the Librarian's office, and may be had for the asking.

NEWSPAPERS.

In the last volume of the Literary Index to Maga-

zines, the volume of 1895, is found an alphabetical list of the principal events of the year, with their dates. This serves as an index to the newspapers, and files of the leading papers which come to our library are preserved for reference.

PUBLIC DOCUMENTS.

These include scientific treatises, results of explorations, economic studies, and are indexed complete from 1889 to June 30, 1895, and those before that date are indexed after a general fashion in a check list which can be consulted at any time.

BOOKS.

These 16,800 volumes and over are all indexed in the card catalogue. This consists of an index to authors found on the west side of the catalogue case, and an index to titles on the same side, and a general index to subjects which begins at the south end of the east side. The author and title cards and a portion of the subject cards are marked to give the location of the book in the new library. Those references taken from cards not yet marked can be found by consulting the author or title index. The number at the extreme right of the card gives the location of the book.

STACKS.

The eighteen iron stacks are all labelled clearly as to the general subject to be found there, and each side of the stack is given a number as explained at the heading of this article. The books are classified in accordance with a numerical system of classification, all books on the same subject having the same number. They are arranged on the shelves according to numbers, the lowest being at the left as you enter the northwest door, and the numbers following consecutively around the stacks up the north side of the room, then across the aisle and down the south side, the last number, 985, being in the southwest corner of the stacks.

HOLIDAY BIBLIOGRAPHY.

Those wanting something for special holidays may find something to help them in little booklets which are sent to us from the Public Library of Cleveland Ohio. It is a bibliography of literature suitable for entertainments on those occasions. We have received for this year booklets for Thanksgiving and Christmas and have the promise that others will follow in due time for holidays to come.

BIOGRAPHIES.

These will usually be found with the books on the subject with which the person identified himself, as

(Continued on page 79.)

Calendar.

1896-97.
Fall Term—September 10th to December 19th.
Winter Term—January 5th to March 27th.
Spring Term—March 30th to June 10th.
June 10th, Commencement.
1897-98.
Fall Term—September 9th to December 18th.

To School Officers.

The College Loan Commissioner has funds now to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioner and the State Agricultural College. Address C. R. Noe, Loan Commissioner, Leon, Kan.

GENERAL LOCAL NOTES.

Over 600 students fill class-rooms and work-rooms to overflowing.

Mrs. Nichols is elected President of the Kindergarten Association.

Large classes make afternoon industrials necessary in all departments.

Mrs. Kedzie will read a paper at the Pure Food Exposition in Topeka, January 29th.

A Salvation Army has come to town. Nightly meetings are held in a building on lower Poyntz avenue.

Col. Copeland will lecture in the course entertainment at the Opera House on Thursday evening, January 14th.

Mrs. Marvin, of Salida, Colorado, is here to assist Mrs. Lantz in the care of her brother, Mr. Dean, who has been quite sick for about a week.

Among the visitors of Saturday afternoon were Mrs. Spohr, Mrs. Thompson, Mrs. Brock, Miss Hattie Smith, and Misses Gertrude and Emma Stump.

Janitor McCreary appeared at College this morning for the first time in three weeks, having been kept at home by a severe attack of his old enemy, facial neuralgia.

The Juniors have elected the following officers for the Winter Term: President, Jeanette Perry; Vice-President, A. D. Whipple; Secretary, A. G. Wilson; Treasurer, Gertrude Rhodes; Marshal, Josephine Wilder.

The Senior Class met on Tuesday and elected the following officers: W. J. Rhoades, President; Winifred Houghton, Vice President; R. W. Bishoff, Secretary; R. J. Peck, Treasurer; Gertrude Lyman, Marshal.

Professors Walters and Georgeson represented the College last week in a farmers' institute at Pleasanton, which was very poorly attended, and through lack of interest by the farmers, was well nigh a failure.

G. G. Menke, Third-year, was attacked with inflammatory rheumatism while visiting his brother at Lawrence, during the holidays, and was able to be out late last week for the first time. He hopes to enter classes tomorrow.

Webster officers for the Winter Term: President, R. W. Bishoff; Vice-president, J. E. Trembly; Recording Secretary, E. Butterfield; Corresponding Secretary, E. B. Patten; Treasurer, M. H. Horn; Critic, F. H. Meyer; Marshal, G. W. Owens.

Mr. Sears writes from Ithaca, N. Y. urging his need of the INDUSTRIALIST. The University, he says, is on a hill as much worse than that of the K. U. as the latter is worse than that of K. A. C. He is located near the University, his address being 5 Heustis Street.

The Ionian Society has elected the following officers for the Winter Term: President, Gertrude Lyman; Vice-President, Mary Norton; Secretary, Dora Sharrel; Corresponding Secretary, Maude Barnes; Treasurer, Nannie Williams; Marshal, Mary Waugh; Critic, Winifred Houghton.

Alpha Beta officers for the Winter Term are: President, E. Shellenbaum; Vice-president, Alice Shofe; Recording Secretary, Eva Philbrook; Corresponding Secretary, Inez Manchester; Treasurer, F. J. Rumold; Critic, J. M. Westgate; Marshal, L. B. Jolley; Board of Directors—Kate Manley, H. W. Forest, C. W. Shull.

Ex-Regent Street, of Decatur County, has been elected Speaker of the House of Representatives. Mr. Street has been a resident of Kansas since 1861, and has lived in Decatur County for the greater part of the time since. About 1870 he fought Indians on the frontier under Custer, and gained fame as a scout. He has owned and edited two newspapers, but is now engaged in farming. He has been a member of the Legislature for three terms before, and served this College well as a member of the Board of Regents for three years, during one of which he was President of the Board. The Legislature has chosen wisely.

GRADUATES AND FORMER STUDENTS.

R. W. Rader, '95, visited at College on Wednesday.

Louise Spohr, Third-year in 1895-6, visited College Saturday.

Fanny J. Cress, '94, is teaching in the schools of Steubenville, O.

C. C. Smith, '94, found time to run up from Wabausee on Saturday.

Prof. S. W. Williston, '72, Professor of Paleontology at the State University, was elected President of the Kansas Academy of Science at the recent annual

meeting of that body. Professors Lantz and Hitchcock are Vice-Presidents.

L. W. Hayes, '96, spent several days at College last week on his return from Blue Rapids to his home in Topeka.

Alverta M. Cress, '94, who has been visiting relatives in Pennsylvania since last spring, will extend her visit until March or April.

D. H. Otis, '92, is chosen President of the Baptist Sunday School, Mary Lyman, '94, is Clerk of the Church, and Isabella Frisbie, '94, Finance Committee.

The First Chapel Exercises.

The Third-years furnished entertainment Saturday afternoon in chapel as follows:—

Seventh Division

Third-year Rhetoricals

Kansas Agricultural College

January 9

1897



MUSIC—College Cadet Band

ANNA HANSON.....
The Peddler

CORA E. EWALT.....
The Football Game

OLIVE SHELTON.....
Nitro-Glycerine

H. ROGLER.....
Future of the Arid West

TACY V. STOKES.....
The Bad Little Boy

O. R. SMITH.....
If it Brings War, Let it Come

Music—Violin Solo
"The Meeting of the Blue and Grey"
B. R. Brown

GRACE STOKES.....
Memory

NORA REED.....
Visionaries

GERTRUDE RHODES.....
The American Flag

H. M. THOMAS.....
Seth Peters' Report of Daniel Webster's Speech

Notes from the Botanical Department.

During the fall term, the Botanical Department has been quite busy with seed collecting and herbarium work. The many plants donated by persons interested in the College and the additions due to the various collecting tours of Professor Hitchcock have added quite a large number of specimens to the Kansas Herbarium. We are indebted to Miss Mary Becker Faris of Ellsworth county for something over two hundred specimens, to Mr. Z. D. E. Brown for an equal number from Douglass, Shawnee, and Osage counties, and to Mr. Kenneth K. Mackenzie of Kansas City for 215 fine specimens from Wyandotte county. In the collection of Mr. Mackenzie, there are about thirty-five species that are new to our herbarium for the State of Kansas.

We have, also, during the past season, received specimens of weeds of our State from the following named gentlemen: P. H. Wimpsey, Coffey county; H. V. Dwyer, Mitchell county; George T. Pettit, Nemaha county; Chas. A. Babbit, Brown county; Thomas Keen and J. H. Walker, Elk county; D. M. Adams and Allen Chaplin, Sumner county; L. Herrick, Harvey county; John W. Hoy, Crawford county; D. E. Ballard, Washington county; John F. Nagle, Pottawatomie county; F. O. Smith, Republic county; T. Havens, Geary county; H. T. Porter, Stafford county; Will Mead, Marshall county; and W. H. Haller, Wilson county. The collection of Mr. Haller consisted of about three hundred specimens.

The "set" of Kansas Plants collected in 1895 by J. B. Norton, Professor Hitchcock, and others, consisting of 653 specimens, has been distributed into the Kansas Herbarium, and adds quite materially to the usefulness of the same.

Up to January 1st, 1897, we had catalogued and distributed into the Kansas Herbarium additional specimens to the number of 3542, which will increase the inventory of the Herbarium something like \$350. Nor does this represent all of our collecting for the season; because there are yet on hand perhaps a thousand specimens named and awaiting the most con-

venient time for mounting, besides several hundred yet to be named.

When Professor Hitchcock attended the Farmers' Institute in Nemaha county, recently, he returned laden with over four hundred specimens from Marshall and Nemaha counties.

On a trip by Geo. L. Clothier to Jefferson county in October, a rank thicket of Canada Thistles was discovered, making the third locality in the State where the weed is known to exist.

The following persons have had their names upon the department pay rolls at some time during the fall term: Z. D. E. Brown, Bertha Kimball, S. Nichols, R. H. Pond, H. F. Roberts, Miriam Swingle, Lora Waters, and Harry Whitford.

Professor Hitchcock recently contributed various botanical publications to the Experiment Station Library to the number of 248 volumes. About forty volumes were bound and the rest have been bound by the State Printer, and they all form a very valuable addition to the library in the Professor's office.

The winter term has opened with 57 Fourth-year students taking structural botany, who are divided into three sections for work in the laboratory, under the immediate supervision of Messrs. Pond and Clothier and Miss Swingle, the Professor having a general supervision over all.

Besides these there are six post-graduate students taking advanced work in cryptogamic botany, and nine reading German botany.

GEO. L. CLOTHIER.

Brown County Farmers' Institute.

The Seventeenth Annual Session of the Brown Co. Farmer's Institute was held at Hiawatha on Dec. 29th, 30th, and 31st. The Institute was an excellent one, and largely attended by the leading families of this prosperous agricultural county.

President Homigton, in his excellent opening address, reviewed the condition of crops in Brown Co., and showed that the farmers were in as good condition financially as men engaged in other lines of business. Dr. Mayo spoke upon the subject of "Hog Cholera and Swine Plague," and by request also addressed the Institute upon "Cornstalk Disease in Cattle," and also upon the "State Agricultural College." The program of the Institute was an excellent one and embraced subjects not usually discussed in farmers' institutes, among them "The Hired Man, his rights, duties, and privileges," being considered. It was thought by some that there was not difference enough made in the wages of a first-class hired man and an ordinary one. Some thought there was at least ten dollars a month difference in their worth, which was seldom made in their wages. Farmers who have tried hiring a man with a family who lived in a separate house, thought it the most satisfactory plan. Such men usually took more interest in the work, had a home of their own, and the farmer's wife was relieved of much labor. "To what extent and for what purpose is a farmer justified in mortgaging his home?" was ably discussed by Mr. Mellenbruch, who thought that under the present depressed condition of farming, the farmer's home should not be mortgaged, except in rare cases of almost necessity; especially if the farmer was in middle life. Young men who had accumulated some means, were justified in mortgaging their homes in order to get one.

Among other topics, ably treated, were "Poultry," "Dairying," "The Farmer's Garden," "Curing and Preserving of Meat for Domestic Use," and "How Should the Farmer Educate his Children?"

In addition to the Institute proper was a corn show, twenty varieties of corn being on exhibition, which added much to the interest of an excellent institute.

N. S. M.

COLLEGE ORGANIZATIONS.

January 9th.

The rap of the Gavel stopped the loquacious electioneering of the Websters. After prayer by J. B. Norton, a short program was served. W. J. Rhoades introduced a merry, vivacious, quartette. They would not respond to the "hurricane" of applause. A. K. Browning gave a sympathetic and well-rendered declamation on the virtues and works of Garfield, and reverently buried him. The Reporter's motto was, "Say what you are going to say and sit down." F. H. Day compiled and read the number with vigor, judgment, and discretion; some of the pieces were: "A Poem," "Taffy Club," "A Breeze," "The Cow." The next act was S. B. Newell with quartette number 2. They rendered some "gilt edged" music which was highly appreciated. Election came; oratory poured forth from every porthole; after the smoke had cleared, R. W. Bishoff stood ahead, presidential flag in hand; Vice President J. E. Trembly will be his aid-de-camp; E. C. Butterfield will develop motion, and take down all motions as Recording Secretary; E. B. Patten has a fountain-pen full of reports, as corresponding Secretary; M. H. Horn, as Treasurer, will collect internal revenue from us; F. H. Myer has a critical job as Critic; our colored chap, George Washington Owens, will do the Marshal act for us for the Winter Term. The "House" adjourned to meet in one week. F. Z.

January 9th.

Y. W. C. A. opened by singing three verses of No. 31, followed by a few short voluntary prayers, singing two verses of No. 62, after which the Association discussed ways by which we may do better work the coming term. In closing, the President asked that each girl stand who would promise to do all that she could, in every way that she could, for the Association the coming term. M. W.

Weather Report for December, 1896.

BY C. M. BRESEE, OBSERVER.

Temperature.—The mean temperature was 38.36°, which is 8.16° above normal. There have been 3 warmer and 34 cooler Decembers on our record. The highest temperature was 71°, on the 11th; the lowest, 18°, on the 3rd—a monthly range of 53°. The greatest daily range was 42°, on the 11th; the least, 3°, on the 17th. The mean daily range was 21.23°. The warmest day was the 30th, the mean temperature being 52.25°. The coldest day was the 18th, the mean temperature being 23.25°. The mean temperature at 7 A. M. was 30.64°; at 2 P. M., 49.45°; at 9 P. M., 36.68°. The mean of the maximum thermometer was 50.58°; of the minimum, 29.03°; the mean of these two being 39.8°.

Barometer.—The mean pressure for the month was 28.945 inches, which is .10 inch above normal. The maximum was 29.562 inches, at 7 A. M. on the 24th; the minimum, 28.525 inches, at 2 P. M. on the 31st; monthly range, 1.037 inches. The mean at 7 A. M. was 28.971 inches; at 2 P. M., 28.921 inches; at 9 P. M., 28.944 inches.

Cloudiness.—The per cent of cloudiness was 35.48. This is 7.52 below normal. The per cent at 7 A. M. was 43.55; at 2 P. M., 35.48; at 9 P. M., 27.42.

Three days were entirely cloudy; two were five-sixths cloudy; five were two-thirds cloudy; three were one-half cloudy; four were one-third cloudy; one was one-sixth cloudy, and thirteen were clear.

Precipitation.—The total rainfall was .26 inch. This is .58 inch below the normal. The table following shows monthly rainfall for 1896, the normal, and departure from normal:—

	Normal.	1896.	Departure from Normal.
January	.77	.31	-.46
February	1.06	.56	-.50
March	1.30	.87	-.43
April	2.72	5.49	2.77
May	4.13	7.41	3.28
June	4.43	2.63	-1.80
July	4.73	5.39	.66
August	3.61	2.26	-1.35
September	3.05	5.06	2.01
October	2.28	5.13	2.85
November	1.28	.91	-.37
December	.84	.26	-.58
Totals	30.20	36.28	6.08

Wind.—The wind was from the south thirty-three times; southwest, fifteen times; north, twelve times; east, nine times; northwest, seven times; northeast, six times; southeast, six times, and west one time. The total run of wind was 5788 miles, which is 1841 miles below the average. This gives a mean daily velocity of 186.71 miles, and a mean hourly velocity of 7.78 miles. The highest daily velocity was 438 miles, on the 17th; the lowest, 76 miles, on the 26th. The highest hourly velocity was 32 miles, between 12 and 1 P. M., on the 25th.

The following tables give comparisons with preceding Decembers:—

December.	Number of Rain.	Per cent of Cloudiness.	Prevailing Wind.	Mean Temperature.	Maximum Temperature.	Minimum Temperature.	Mean Barometer.	Maximum Barometer.	Minimum Barometer.
1858	3	1.11	...	25.96	56	-16	...	...	...
1859	1	.20	38 NW	20.90	62	-8	...	...	...
1860	3	.50	30 NW	32.43	52	18	...	...	...
1861	3	1.00	28 S	32.19	65	0	...	...	...
1862	3	2.25	35 SW	39.50	68	14	...	...	...
1863	4	2.17	31 NW	27.93	59	13	...	...	...
1864	4	1.11	61 NW	27.07	58	-6	...	...	...
1865	4	2.02	60 N	28.89	57	4	...	...	...
1866	2	.51	46 NW	35.44	62	15	...	...	...
1867	3	.81	53 SW	24.85	57	-16	...	...	...
1868	4	.16	43 NW	30.05	58	-3	28.82	29.20	28.45
1869	4	.45	46 SW	29.93	63	-11	...	...	...
1870	1	.35	39 SW	24.17	53	-6	...	...	...
1871	3	.95	47 S	21.02	60	-11	...	...	...
1872	4	1.67	60 SW	28.71	65	5	28.74	29.26	28.29
1873	3	.67	48 SW	31.66	58	0	28.82	29.32	28.28
1874	2	.78	51 SW	38.22	72	4	28.70	29.11	28.20
1875	1	.50	41 SW	20.29	69	-11	28.97	29.50	28.43
1876	3	1.65	52 SW	41.68	67	13	28.81	29.20	28.30
1877	4	.91	50 SW	21.35	57	-7	28.89	29.33	28.27
1878	2	.62	45 NW	24.75	56	-10	28.60	29.12	27.97
1879	1	.28	57 SW	24.40	65	-16	28.69	29.21	27.92
1880	2	.53	57 SW	38.48	65	16	28.73	29.04	28.26
1881	3	.44	58 NW	29.59	62	-7	28.72	29.49	28.10
1882	2	.27	51 SW	33.04	66	2	28.68	29.14	27.98
1883	2	.33	50 NE	21.70	57	-7	28.58	28.95	28.10
1884	4	1.09	47 S	33.03	60	-4	29.10	29.41	28.56
1885	4	1.58	40 NE	24.34	62	-5	29.05	29.66	28.61
1886	2	.79	39 N	26.19	56	-9	29.07	29.88	28.43
1887	3	1.22	31 N	33.39	64	10	29.07	29.46	28.47
1888	3	.02	25 SW	41.50	75	0	28.90	29.40	28.11
1889	2	.08	28 SW	33.21	72	3	29.01	29.47	28.37
1890	2	1.09	24 SW	37.97	67	5	28.82	29.48	28.18
1891	4	1.75	44 SW	24.02	67	-9	28.95	29.39	28.45
1892	7	.70	24 SW	34.13	68	4	28.94	29.49	28.45
1893	4	.37	31 SW	35.15	73	-4	28.94	29.60	28.29
1894	2	.59	42 N	32.16	64	5	28.83	29.24	28.28
1895	4	.26	35 S	38.36	71	18	28.95	29.56	28.53
1896	1	...	...	...	...	...	...	...	...
Sums	113	31.78	1587	1147.5	...	...	721.38	...	...
Means	3	.84	43	30.20	...	...	28.85	...	...

WIND RECORD.

December.	Total Miles.	Mean Daily.	Maximum Daily.	Minimum Daily.	Mean Hourly.	Maximum Hourly.
1889	8046	259.55	576	51	10.81	47
1890	6414	206.90	431	82	8.62	33
1891	10030	323.55	632	65	13.48	48
1892	5426	175.03	449	69	7.29	25
1893	7903	254.93	468	65	10.62	27
1894	8438	272.20	557	92	11.30	34
1895	8357	269.58	594	92	11.23	40
1896	5788	186.71	438	76	7.78	32
Sums	60402	1948.45	...	...	81.13	...
Means	7629	243.56	...	...	10.14	...

HELPS TO THE USE OF THE LIBRARY.

(Continued from page 77.)

chemists with chemistry, a statesman with the history of his country. For general references to biographies, consult,

Lippincott's Biographical Dictionary in 34,
 Allibone's Dictionary of Authors, 1,
 Century Dictionary of Names, 1.

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Meeting of State Historical Society.

The State Historical Society will hold its twenty-first annual meeting at Topeka, January 19, 1897.

The Board of Directors will meet in the Society's west room at 3 P. M. The usual business will be transacted.

An open meeting of the Society will be held in Representative Hall at 7:30 P. M.

Gov. E. N. Morrill, President of the Society, will deliver the annual address, on the subject: "The Territorial Legislature of 1857-'58."

Col. Horace L. Moore, of Lawrence, will deliver an address on the subject: "The Campaign of the 19th Kansas Volunteer Regiment against the Indians of the Plains, 1868-'69."

Hon. William D. Street, Oberlin, will give reminiscences of the same campaign.

Prof. E. B. Cowgill, Topeka, will read a paper on the subject: "The Kansas Descendants of the Emigrant Passengers of the Ship 'Welcome,' 1682."

After the addresses the annual report will be presented and acted upon.

Thirty-three members of the Board of Directors, to serve for three years will be elected.

Officers of the Society will be elected by the Board at the close of the annual meeting.

Music and other exercises will be added to the program.

Farmers' Institutes.

Institutes have been appointed and assignments made from the College as follows:—

Overbrook, Osage County, January 21st and 22nd; Professors Mayo and White.

Wellsville, Franklin County, January 22nd and 23rd; Professors Georgeson and Will.

Peabody, Marion County, January 28th and 29th; Professors Walters and Mason.

Concordia, Cloud County, January 28th and 29th; Professors Graham and Mayo.

Hutchinson, Reno County, February 4th and 5th; Professors Hitchcock and Nichols.

Stockton, Rooks County, February 4th and 5th; Professors Hood and Burtis.

Newton, Harvey County, February 4th and 5th; President Fairchild and Mrs. Kedzie.

Berryton, Shawnee County, February 11th and 12th; Secy. Graham and Mrs. Kedzie.

Haven, Reno County, February 11th and 12th; Professors Lantz and Popenoe.

Our Influence for Good or Evil.

It is difficult to say where our influence begins; it is more difficult to say where it ends. We can neither remain untouched ourselves, nor can we avoid touching others. Influence is a thing that passes beyond sight, sound, or feeling; there is an influence beyond that of words, beyond that of action, beyond that of personal contact. Even common acquaintances, even strangers whom we meet for a few moments, leave a mark upon us—a mark that has been said to endure to eternity; how much more, then, our intimate friends! Who can circumscribe or limit or fathom the influence of a friend? Who can fully understand the influence of a parent on a child, which is greater than that of the child on the parent, only because it is exerted at the most impressionable age?

To think of our influence is often the best way to regulate our personal conduct. We may not sufficiently shrink from doing wrong ourselves, but all of us in whom the least spark of goodness remains, hesitate before we would lead others into evil. Experience teaches us that as we can not be evil without shedding a bad influence over others, so we cannot be good, and true, and unselfish without casting a noble influence around. Thus our incentive toward well-doing is doubled and the blackness of wrong is enhanced. This argument of one's influence, spreading like the circles in a pool after a stone has been cast, is always the most effective with the better class of minds.

What men will not do for themselves they will sometimes do for others. There is many a father who, were he perfectly free and independent, might

live a thriftless and vicious life, but he thinks of his boys, and of his power of molding their young characters according to the pattern he sets before them. For their sake he remains a steady and prudent man, till even the tendency toward folly has been eradicated by the expulsive power of a nobler motive. In this manner, and in countless other instances, influence becomes not only beneficial to others, but a steadying and supporting aid to one's self. To do right and to think and speak right, for the sake of others whom our words and actions affect, is even better than to do so with the more selfish reflection that we ourselves are permanently affected thereby. Influence may therefore be made synonymous with duty. Our endeavor should be toward consistency, sincerity, stability; otherwise we shall lose all chance of exerting a wholesome influence, and even our occasional good actions will lose much of their effect. What model can others take from us if we are insincere, unstable, inconsistent? Unless we have a worthy guidance for our own actions, it is not likely that we shall become a good influencer of others. The philosophers say, "Wouldst thou rule others, first learn to rule thyself." In similar manner, if we would have our influence healthy, stimulating, and true, we must be ourselves healthy, constant, unselfish, faithful. What we are, influences others even more than our words and deeds; the words may be insincere, the deeds may proceed from unworthy motives; that which enduringly influences comes from the reality, not the seeming.—*London Spectator*.

Good Associates.

The importance to young men, and, for the matter of that, to young women also, of selecting good associates cannot be too often impressed upon the minds of those who are at the threshold of their independent lives. It is not possible always to determine in advance who are good associates, but the author of "Lacon" gives one serviceable rule when he says: "In all societies, it is advisable to associate, if possible, with the highest—not that the highest are always the best, but because if disgusted there we can at any time descend; but if we begin with the lowest, to ascend is impossible. In the grand theatre of human life, a box ticket takes us through the house."

There is another reason, for the highest or most cultivated society is in reality the best. It is true that within that society are degraded men and women, but they are conspicuous because they are exceptions to the general rule. It is quite safe for any young man or woman to choose associates from those who are cultivated in that they have literary, or art, or scientific tastes, and whose minds are, therefore, occupied with subjects that tend toward culture and refinement rather than to seek companions among people who, being without elevating mental occupation, are fit subjects for temptation to vice. The term higher class, as here used, never means merely the wealthier class, though naturally the wealthy are usually cultivated in their tastes.

In the grading of society in a democratic community, culture is the only true measure of distinction, and that is exhibited, not merely in manners, but in the tastes and mental occupations of the individual. There are men and women of acquired and natural culture to be found among the poor, more among the well-to-do, and still more, in proportion to numbers, among the rich, but this is due, not to direct influence of wealth, but to the adventitious circumstance that wealth provides the means and opportunity for culture. It would be wrong to take wealth as a measure of culture; it would be a mistake to ignore its influence. After the young man has obtained a fair degree of culture for himself and has had experience in the world, he may find congenial and improving companions in any walk of life, but previous to that time he should seek associates among those whose modes of life and opportunities give likelihood of elevated tastes and good manners. There he will be sure to meet companions who will help him to occupy his leisure moments in improving amusements rather than in those which, if not degrading, serve merely to "kill time." Thus occupied, he will insensibly acquire tastes and habits protecting him from temptation to vicious courses, will acquire some degree of refinement, and will equip himself to move worthily among companions of a still higher class. Culture and refinement do not take the place of moral training, but they are great aids to moral training, and the young especially should seek their companions among those who have refined tastes.—*Baltimore Sun*.

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TESTING MILK.

BY PROF. G. H. FAILYER.

THE ease with which milk can be diluted with water or the cream partially removed before the milk is marketed, early gave rise to a desire for a simple means of testing these falsifications. Although many forms of apparatus were designed and many methods of treatment devised to simplify the testing of milk, none of them, if simple, gave very reliable results. A chemical analysis, which is somewhat laborious and consumes time of an expert, was the only way to arrive at any definite knowledge of the quality of the milk. These remarks apply to the attempts to regulate the sale of milk for family use. Later, the purchase of milk by creameries, the desire to be able to learn the quality of the milk yielded by a herd, and of the individual members of the herd, and the importance of studying the effects of different methods of feeding gave an impetus to the work of devising methods. This resulted in what is now known as the Babcock test, several methods far superior to the old ones, but inferior to the Babcock method having preceded it.

Since the exact methods used by chemists were impracticable for use at creameries, dairies, and, the like, and, further, gave the real amount of fat in the milk rather than the amount of butter that would be made from it, an attempt was made to substitute the churn method of testing the milk. It was thought that only that portion of the fat globules that would be removed in the cream and appear in the butter in practice would be obtained in the churn test; while by the chemist's method all globules, large and small, would be removed. Hence, the churn test would be not only much more rapid, but more reliable where the quality of the milk for butter making is concerned. This seemed reasonable. But it should be remembered that butter is variable in composition. Even where different samples of the same milk are treated as nearly alike as possible, the butter from them will not have the same composition. If samples be treated differently, such as one standing longer than the other, or becoming slightly sour, the composition of the butter from the same milk differs greatly. Butter is not pure butter-fat. It contains in addition a percentage of water, of curd, and of mineral matter. The amounts of these that are entangled and carried off in the butter vary with the treatment. The quantity of butter obtained will of course vary with the proportion of these additions to the butter-fat, and the method is faulty as a means of testing milk.

The Babcock method, although simple in manipulation and requiring but little time to complete the work, is more complex, if we should attempt to explain the changes involved. It consists essentially in so treating the milk as to render the fat globules free to aggregate readily and then hastening their rise through the milk by rapid swinging. The volume of the fat is read in the narrow tube. In this test, the total fat present is determined. It aims to give the real proportion of the fat without indicating whether it will probably be separated in butter-making. It must be remembered that the fat globules vary in size, that the smallest globules remain in the skim milk, and that the average size of the globules varies with the breed of the cow and with different individuals of the same breed. But although the above element of uncertainty pertains to the Babcock test, it is of great value if we are to accept the practice of progressive creamery men as a guide. Milk is largely bought on a scale of prices depending upon the results of this test, and dairymen are using it as a means of weeding out the members of the herd that give milk low in fat. Why should not the same practice be adopted by the average farmer who keeps cows mainly to supply the family? Many of these turn off surplus butter at least a portion of the year. It is just as important that they should have good cows as that the dairyman should. The question of raising calves for future fattening, incidentally, might cause other selections, it is true, but generally the two need not conflict.

If the expense of the tester seems too great for the individual farmer because of the limited use he will make of it, several neighbors could combine in its purchase. Granges, alliances, and farmers' clubs might buy a good machine and each member make occasional tests of his cows. We need not fear having too exact information upon our work and its results.

All that has been said has had reference wholly to the butter-fat in milk. As food for man and animals,

milk contains other food elements quite as valuable as fat. The curd and the sugar are of value. If the richness of the milk in these is desired, other tests than that of the Babcock method must be used. The old-fashioned spindle sometimes used in testing, where cream was the consideration, might be used in connection with the Babcock test. A large proportion of butter-fat makes a light milk. A large proportion of sugar and caseine makes it heavy. From the readings of the spindle and that in the butter-fat test, a fair conclusion can be drawn as to the quality of the milk in its several constituents.

ANOTHER LESSON.

BY PROF. O. E. OLIN.

THE world is just now facing a terrible object lesson in India. A great famine is upon the country, involving eighty million people, more than the whole population of the United States. This famine, or the possibility of it, has been foreseen for nearly a year. Month after month the papers have noted the progress of the unfavorable conditions; and yet it would seem that no adequate relief measures were taken. Now, when famine has bred plague, and Asia and Europe are threatened with a return of the "black death," all nations are aroused. If in the next three months a hundred thousand lives are lost, will the world be guiltless?

It is easy enough to find fault, especially at this distance; but fault-finding does no good, and usually comes from those who have done nothing to avert the danger. It will be more to the purpose if we face some of the facts of our complex civilization, and earnestly question whether they are ultimate ones. One fact is, that the world, as a whole, is living from hand to mouth. There is never enough laid by to carry all the nations through a year of wide-spread failure. Joseph showed his practical wisdom by establishing, during years of plenty, national storehouses to be the dependence of the people in time of scarcity. Would it not still be well, in regions of dense population and varying conditions, to imitate the wisdom of Egypt so long ago?

Another thing is that selfishness defeats itself. The nations, for the sake of saving money, might be willing to let India starve; but it will cost them more to fight the plague than all that their selfishness has saved. It has always been so. It is the way in which God, or evolution, or whatever power you may believe rules the world, teaches selfish men to answer the question, "Am I my brother's keeper?" On the ground of selfishness alone, we cannot afford to have a single famine- and plague-ridden spot on the earth. When this lesson is thoroughly learned, we shall be far on toward the "parliament of man."

When a strong government imposes its rule upon a weaker people, taking from them the right of control, ought it not to feel unusual responsibility for the welfare of that people? The doom of India is the shame of England. Government is organized society. Is its duty only to restrain? Is it so far removed from daily life that, in the face of approaching calamity, it is helpless to provide safety?

Are we not making too great a bug-bear of "paternalism?" Government is two-fold. We are constantly strengthening and extending its restraining power: are we likewise trying to extend its active beneficence? Here, surely, the wisest statesmanship of the world can find a field till our systems of transportation and methods of distribution shall be such that the pitiful scenes of India today can never anywhere on the earth occur again.

If the sorrows of our Hindoo brethren shall make us face the questions of practical life and think our way to a better solution, their sacrifice will not have been in vain.

Permanence and Thrift.

The following from a thoughtful writer is well worthy the serious consideration of every farmer:—

"The man who does not seek to better his condition in life is almost certain to prove a hopeless drag; but the man who seeks to improve himself out of his line rarely makes the best of it. We strive too much to retire to the neighboring town or city on a competency: not when age makes us feel the burden of toil, but while the pleasures of town life still allure. If content to labor on, we aspire to people the towns with doctors, lawyers, and merchants in the persons of our sons. In such circumstances we do not gather slowly and surely about us the solid comforts of life."

The Farmer of the Future.

In discussing the farmer of the future, it is not to be supposed that we consider ourselves at all gifted or afflicted with the spirit of prophecy. The simpler and most direct reasoning from cause to effect is the only basis for the conclusions arrived at herein.

It is a fact that agriculture has not kept pace with the sciences; in fact, the highest development of agriculture of the present is, by comparison, hardly to be classed as a science, and is so designated only because it is the highest and best we know. The wooden plow of 75 years since was a scientific instrument because it was the best that was made then.

Agriculture has been dragged up to its present development mainly by the development of the so-called higher sciences and with very little inherent disposition toward progress. The reasons for this are quite apparent. The farmer has generally been denied the advantage of even a fair education, and under the cutting lash of necessity, his children are in their turn also denied. The hurry and drive of work and toil make study and thought or reading impossible, or at least burdensome, so the world moves on with the average farmer hardly within shouting distance.

In the farmer of the future, all this will be changed. The new farmer must stand shoulder to shoulder with the possessors of the highest and most advanced thought of the age in which he lives. No longer a reluctant follower, he must be a teacher, thinker, and investigator, sharing the toils and labors, as well as the glorious fruits of victory.

He will no longer allow himself to be led around by the nose by gentlemanly fertilizer manufacturers who kindly and feelingly sympathize with past failures, and guarantee success with their formula at so much a ton, with advice and information gratuitous.

The farmer of the future will know the needs of his soils, his growing crops, know the causes of past failures and apply proper remedies, and it is highly probable that the most profitable branch of agricultural science, the manufacture of fertilizers, will soon be relegated to the "demition bowwows."

In order that this may become possible, it is essential that farmers should cast off the shackles of slavery and burdens of care and toil which under existing conditions seem necessary to farm life, and become free men in the higher acceptance of the term—enjoying the broadest liberty of thought and action. Existing conditions must be radically altered to make this freedom possible. It is not my purpose to say how these conditions may be altered, but a few of the more glaring errors may be pointed out.

Perhaps no problem of our modern social life is more universal or more perplexing than the land question. Most of our farmers own more land than they can properly care for, and let me say that this is a manifest injustice, first, to themselves, the unnecessary care and toil imposed upon them; second, to the land itself, suffering from improper or insufficient cultivation or perhaps no cultivation at all, and exhausting itself yearly with its scanty yield; third, an injustice to the thousands of landless individuals who would rejoice in its possession and make the wilderness to blossom as the rose.

The most intense of intensive farming must come in the near future. The highest possible results must be obtained from every foot of soil cultivated and until failures cease absolutely and the results of toil are as certain as the turn of day, agriculture cannot be classed as a science in the strict construction of the word.

No man possessing enormous areas of land can possibly do entire justice to it all—that is, obtain the highest possible results from it, and in return for this injustice or neglect it burdens his soul, dwarfs his intellect, makes himself a slave, his wife a drudge, deprives his children of opportunities and perhaps of ambition to obtain an education and eventually drives them from home disgusted with "farming."

Then, too, there is the burden of indebtedness under which so many of our farmers are laboring which is equally as bad in its effects and perhaps more disheartening, for the burden of debt makes itself visible and apparent, while the land-burdened farmer staggers cheerfully on year after year in apparent blissful unconsciousness of what his burden is. Both of these conditions are wrong in principle and both must pass away.

At present, farming is a perpetual warfare with the elements and forces of nature. In the sections of our vast country much of the most fertile soil lies barren and neglected on account of the perpetual drouths, rendering expensive systems of irrigation necessary. Even here in New England we feel almost yearly the oppressive hand of Providence in drouths more or less extensive which work incalculable injury to the growing crops, making profits small and uncertain.

The farmer of the future must live at peace with the forces of nature, because all those forces must be made subservient to his will. Walking his fields in the cool of the day and realizing the necessity for rain, he will beckon to the passing cloud and it will do his bidding. That may sound somewhat preposterous or presumptuous, but let me say that very many things equally as marvelous have been accomplished by modern science, and to me the most wonderful thing about this proposition is that it is not already an accomplished fact. Any matter which science really seriously considers is accomplished sooner or later, and a little more time, a little experiment, a little further study of natural law, and the clouds of heaven will become as obedient as the electric spark.

How many are aware of the experiments which are making today in the use of electricity in the growing of crops?

Such experiments are in actual progress and have now been encouragingly successful almost at the

first inspection. There is no doubt of ultimate success in this direction and the same agent will doubtless plow and cultivate the fields, kill noxious weeds and insects and aid quite largely in making the life of the farmer of the future "one long bright happy dream." In all these matters it must be recognized that the active, dominating, creative, inventive force is the unconquerable human will and intellect with its expanding development and its ever increasing range of thought and power.

Motor vehicles may be considered as of absolute certainties of the near future and with their attendant necessities among the best possible roads are sure to aid largely in obtaining the maximum of result from the maximum of effort.

Co-operation, of the results of which our grange gives us a hint in wholesale purchase of grains, fertilizers, fuel, etc., will be much more extensively practiced by the farmer of the future, not only in buying but in disposing of his products as well as in labor. The farmer of today can co-operate with his products to buy, but he will undersell the same neighbor in the disposal of products, cutting not only his neighbor's throat but his own as well. This is a system or perhaps I should say a lack of system, to which the old saying of "saving at the spigot and wasting at the bung" might very properly apply.

The farmer of today might learn a valuable lesson from the great trunk railroad lines which combine to keep freight rates on a paying basis, pool their issues and bleed both producer and consumer.

But we were considering the farmer for the future. Still another of the great problems of this present time, the new woman will have been solved for the farmer of the future. And, allow me to interrupt to say a most devout and reverent "God bless the new woman, with all her splendid ambitions—all her divine aspirations." One of the chief burdens of society is the growing class of non-producers. This is a matter which is attracting the attention of sociologists especially, and of thinking men everywhere. It is a matter involving serious complications and will probably not be disposed of for many generations to come, so the farmer of the future will take active part in the solution.

Think of the vast armies of the old world,—the hundreds of thousands of non-producers,—and, if you dare, imagine the armies disbanded and the vast hordes turned loose into the fields and workshops to become wealth producers! No longer an idle and expensive burden on the people, but adding to the wealth and prosperity of the world. What a social and industrial upheaval would result! What perplexing problems would present themselves for immediate solution. Yet this is certain to come in the very near future. The art of the gun-maker is rapidly nearing perfection—which means the total annihilation of contending forces. When this is attained, contention and strife will cease and honest toil will be sought as the alternative.

The grange, essentially an educational institution, organized for the specific purpose of bringing together and enlarging their sphere of thought, broadening their intellectual possibilities and lightening life's burdens, it is fitting itself to occupy the position of teacher for the farmer of the future? If it is to be a teacher, it must be prepared to help him solve the new problems which will arise with every great change in social conditions. It must be a leader, not a follower. It must shake off the conservatism and prejudices which cling to its garments, and having qualified, must make its leadership felt and recognized.

It is time for the grange to be up and doing, for the farmer of the future is already discarding swaddling clothes and will soon be requiring answers to some pretty hard questions. I have faith that the grange will do this. I have faith in the just as I have faith that under the snows and dark, forbidding clouds of winter lie hidden all that makes the spring a time of joy and gladness. I believe in the splendid brotherhood and sisterhood of the grange, and I believe as well in the broader, grander truth of the universal brotherhood of man—the fatherhood of God.

Science is essentially progressive, and when it ceases to progress, then it ceases to be a science. The man who, having discovered a truth, no matter how far in advance, hugs it to his breast and fondly dreams that he has reached the ultimate of human progress, ceases to be a scientist and becomes a crank. The broadest minds of this present time recognize no ultimate, no unfathomable depths—only unfathomed; no unmeasured distance, only measured; that beyond the dimmest star of hope upon the far horizon of the future stretches the vast, unfathomed, unbounded ocean of the infinite, whose sun-kissed waves beat in endless rhythm the shifting sands of the eternities.—*New England Farmer.*

A Word with the Boys.

One week of close observation in any one of our leading cities ought to be sufficient to show that every department of city work is now overcrowded with applicants for work. "The room on top," for even experts, is growing less and less yearly. "But I may be the lucky one," you say. Very well. It is but one chance out of a hundred that you will be. What then? Our advice is "to stick to the farm" or master some mechanical or professional pursuit for which you have a special liking. It is the boy who likes his special work that will succeed in making a success of it.

A good education is now an all-important element, and the absolute basis of success. You may despise farming as an occupation. If you do, it is because you know nothing of the principles underlying it. In the days of your grandfathers the main object was to accumulate more acres. Your fathers appeared on the stage when the need of better culture of fewer acres became apparent and commercial fertilizers

began to come into use in the South and East as restorative aids.

You must soon take your father's place in the world's work; and you may well ask in serious earnestness, "What am I going to do about it?" Well, the first thing and the best thing you can do is to accumulate some brain capital. You'll make a failure of life in every pursuit if you don't. Do not forget that brain capital will yield just as good a per cent as cash capital. If you expend \$1000 in borrowed money to enable you to graduate from any agricultural and mechanical college, and thus become fitted to direct "uneducated labor," you will never need to look for work, for capital will seek to employ you the moment you graduate. Should you unfortunately decide to work away on the farm, neglect your educational development, and hoard up your hard-earned money until a thousand dollars capital has been accumulated, if it takes five years to do it, I venture the assertion that at the end of ten years the college graduate who had put into successful practice the scientific principles of agriculture, as demonstrated by the experiment teachings of to-day would be able to buy you out four times over. My word for it, you had better farm your brain first and the soil afterward.—*Washington Post.*

Give the Boys a Fair Show.

In the hurry and push of farm work we are too apt to overlook the fact that the boys should have some time for rest, recreation, and fun. There is time for all things. The experience of the writer has been that a half day off in the week results in no loss what ever to the average farmer. Also, that such a plan is a sure antidote against making old men out of young boys.

Another thing that is wrong is to agree to let a boy have for his own, "to keep or to sell" a lamb, calf, or colt, and when he has cared for it and become attached to it, to sell it without his consent and put the money in your pocket. There is no language that is expressive of the meanness of such an act on the part of parent or guardian. Let the boy have something he can call his own, or give him a piece of ground and let him have the crop. Let him make his own spending money in this way, and he will feel proud of it, and will take more interest in farm work than he otherwise would.

We want to keep the boys attached to the farm-home, the old homestead, so that when they go out from it to engage in life's battle in the cities' marts, they will long for a return to rural pursuits. Farmers' boys, as a rule, have the muscle, brain, and force to attain the highest positions possible in the varied employments of mankind. Fully 90 per cent of the leaders in national, State, and educational affairs who are now the acknowledged leaders among men, were once farmers' boys, whose physical vigor made it possible to endure the severe strain consequent upon the struggle for supremacy. From the field to the forum, or the farm to the White House and the Presidency of this great nation, possible as it has been in the past, is likely to be still more probable with the ever-increasing educational and social advantages which modern farm life affords.—*Washington Post.*

The Good Roads Problem.

The matter of building good roads has passed the state of mere agitation in some States, and the work of construction has been commenced and with satisfactory results.

At the good roads congress recently held in Atlanta, the testimonials offered regarding the actual money profit to farms and other property along which good roads have been built was astonishing. Farms that were slow sale three years ago at a low price were readily sold since rock roads had been built. The payment for the road construction is not due for years yet, and is then distributed over a series of years, so that the burden will be very light to the new comers.

In States where there is not proper legislation to further the building of good, hard roads, it is a good time to work on public opinion and push the claims of good roads upon such Legislatures as may be in session. Good roads are needed, good roads pay, and good roads can be had, if all who should will work for them.—*Colman's Rural World.*

One Way to Good Roads.

When Appian Claudius started out to build the now famous Appian Way, he didn't wait for carriage builders, bicycle clubs and "farmers' picnics" to pass resolutions on the subject. He simply put men to work and constructed a road three hundred and thirty miles in length, by fourteen to eighteen feet wide from Rome south through Capua to Brindisi, and although 2206 years have passed since then, the Appian Way is still the best country road in Europe. When Napoleon determined that France should have the best highways on earth for rapid movement of troops and the ready supply of armies with provisions, he didn't pause for the adoption of a constitutional amendment, but at once took his soldiers out and built the roads. And there they are today, the finest and best highways ever constructed. This dictatorial way of doing things is of course neither possible nor advisable in a republican country, but it is a part of history which teaches us that the only way to get good roads is to build them, no matter what the cost. What is wanted most in the construction of country roads is a disposition to give up the cash required for the purpose. A bushel of resolutions never yet built a foot of roadway anywhere under heaven.—*Colman's Rural World.*

Calendar.

1896-97.
Fall Term—September 10th to December 19th.
Winter Term—January 5th to March 27th.
Spring Term—March 30th to June 10th.
June 10th, Commencement.
1897-98.
Fall Term—September 9th to December 18th.

To School Officers.

The College Loan Commissioner has funds now to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioner and the State Agricultural College. Address C. R. Noe, Loan Commissioner, Leon, Kan.

GENERAL LOCAL NOTES.

Miss Gertrude Haulenbeck assisted in the musical exercises Saturday afternoon.

Miss Lucy Sherwood and sister spent Saturday in visiting the sights about College.

Mrs. Maude Parker-Hutto enters Fourth-year classes this term intending to graduate.

Mrs. Koller, Miss Glen McHugh, and Mr. Roy Smith were callers Saturday afternoon.

E. Emrick, Fourth-year, takes up the duties of janitor in the absence of Mr. McCreary.

President Fairchild has been kept from College duties for several days on account of sickness.

Mrs. D. G. Lantz, of Manhattan, Prof. Lantz's aunt, died yesterday morning, after being confined to her bed for fourteen months.

The over-crowded kitchen is a busy place these days. In the effort to make room, one dining table has been moved into the hall.

The Floriculture Class of twenty-seven young ladies finds interesting study and experiment in the greenhouses and propagating pits with favorite plants and flowers.

Secy. Graham will read a paper on "Neighbors Who Have Helped Me" at the meeting of the Riley County Educational Association, to be held at Riley, February 13th.

The Horticultural Department is making a thirty-day test of its hot-water heating plant to determine the amount of coal used in maintaining the necessary greenhouse temperature.

Prof. O. E. Olin has been re-appointed associate member of the board of county teachers' examiners, and Will E. Smith has been appointed in place of J. W. Lowdermilk, resigned.—*Riley County Educator*.

State Superintendent Stanley issued institute instructor's certificates, last Wednesday, to Geo. L. Clothier '92, of Manhattan, S. N. Chaffee '91, of Riley, and Geo. W. Smith '93, principal of the Minneapolis high schools, and son of our townsman Capt. J. T. Smith, and an institute conductor's certificate to Prof. D. E. Lantz, of this city.—*Mercury*.

Ex-Regent Coburn, Secretary of the State Board of Agriculture, is endorsed by the Board and by the Improved Swine Breeders' Association for Secretary of Agriculture in President-elect McKinley's cabinet. Though Kansas can ill afford to lose so good an officer and citizen, he may as well go now, as he will some day, to a wider field of usefulness. This College adds its hearty endorsement.

Prof. E. M. Shelton, formerly of Kansas Agricultural College, now of Brisbane, Australia, sends to the *Kansas Farmer* a bulletin which he has recently published, on "Silage and the Silo: How to Make the Silo and Fill It." Prof. Shelton is a very practical as well as an industrious and well-informed man, whose bulletins are always of great value, especially to those for whom they are prepared.—*Kansas Farmer*.

Miss Pearce, our Librarian, was called on Thursday to the bedside of her father, Mr. J. W. Pearce, who died on the following day. The funeral services were held at the residence, a mile south of Stockdale, Sunday morning, and the remains buried in Manhattan Cemetery in the afternoon. Deceased leaves a wife, three daughters, and two sons. The oldest child, a married daughter, lives at Fort Scott, and owing to ill health could not be present at the funeral. Another daughter, Mrs. Doty, of Pierce City, Mo., was present with her two children. The boys are at home.

A recent number of the *Lawrence Journal* contains this note concerning a son-in-law of our Prof. Walters: "Kansas University may lose the service of Prof. Arnold Emch, who has been Assistant in Graphics for the last two years. A cablegram was received this morning announcing his election as Professor of Mathematics at Beil, in Switzerland. Mr. Emch is one of the Kansas University Faculty whose work has been noticed in foreign publications a number of times, and it is that which has brought him the offer of the new position. He has yet to decide whether or not he will accept the new place."

On invitation of Mrs. Kedzie, the Regents and Faculty met on Tuesday evening at a dinner served by the Cooking Class. Short speeches followed by several members of the Board. Messrs. Hoffman and Goodyear, whose terms of office expire in April, and Mr. Stewart, whose appointment by Governor Morrill in the interim of the Legislature has not been confirmed, referred to the pleasant duties that had been theirs as members of the Board, and said their interest in the College would not end with their official service. Messrs. Daughters and Noe, who hold commissions to 1898, spoke briefly, testifying to the pleasant relations that had existed between the members of the Board and between Board and Faculty since they had been connected with the College, and echoed the sentiment

of the Faculty in expressions of regret that faithful, conscientious officers were to leave us. President Fairchild added his endorsement as to the worth of the retiring members, and expressed the wish that Governor Leedy might name men equally good.

Janitor McCreary left yesterday for Chicago to undergo an operation—the fourth in as many years—for *tic douloureux* or face ague, which returned about six weeks ago, and gradually grew worse. He has the sympathy of his friends, who know something of his intense suffering, and hope he may return permanently cured.

Senior Class
Rhetoricals

Fourth

Division

January 16, 1897

"Genl. Boulanger's March"—
College Cadet Band

J. B. NORTON—

First Impressions.....

E. L. HOUGHAM—

The Kodak Craze.....

MARY NORTON—

Corn Husking Time.....

"Rastus on Parade March"—
College Cadet Band

O. E. NOBLE

L. G. HEPWORTH—

Debate—Resolved, That Conservatism Has Had More Influence Than Radicalism in the World's Development.....

CORA ATWELL—

Franco-Americans.....

F. H. MEYER—

America's Representative Poet.....

"Protestations," Vocal Solo, with violin obligato accompaniment—
Marie Haulenbeck and R. H. Brown

V. MAELZER—

The Millionaire.....

S. B. NEWELL—

Sympathy.....

N. M. GREEN—

The Founder of Democracy

GRADUATES AND FORMER STUDENTS.

Bertha Bacheller, '88, spent Saturday at the College.

Ora Yenawine, '95, visited Chapel exercises Saturday afternoon.

W. O. Peterson, '97, writes on "Harmony in Education" in the *Students' Herald*.

Eusebia Mudge, '93, is taking a three months course in music at Topeka.

Walter Hoffman, student last term, is reported as improving in Alabama, where he went for the benefit of his health.

The charge of the Library has fallen upon I. A. Robertson, '96, for several days past in the absence of Miss Pearce.

H. N. Whitford, '90, W. E. Smith, '93, and Ada Rice, '95, have been granted State certificates by the State Board of Education.

Elsie Crump, '95, and Mabel Crump, Fourth-year, mourn the loss of their father, Mr. H. C. Crump, who died from paralysis, January 14th.

F. W. Bobbitt, Second-year, and W. B. Bobbitt, First-year, have been called to their home in Tumsa, I. T., by the sickness of their father.

"Apple Growing in Grand Isle County" is the title of a bulletin by F. A. Waugh, '91, Professor of Horticulture in University of Vermont, at Burlington.

E. H. Webster, '96, returned on Saturday from Chicago, the Aermotor Company with whom he was employed having practically shut down for want of business. He will work on the home farm in Woodson County for a few months, pursuing post-graduate study in the meantime.

F. J. Smith, '95, sends College friends the first number of his paper, the *Russell Reformer*. Barring the name, it makes a very favorable impression for an introductory number put together under the innumerable difficulties of opening a new office in a hurry in a strange town. The *Reformer* will be better, even more so than it promises.

Graduates will be largely responsible for the program of the Riley teachers meeting, February 13th, the following persons being assigned: "Horace Mann, A Character Sketch," Lillian A. St. John, '91; "Some Methods in Arithmetic," S. N. Chaffee, '91;

Post-prandial Address, W. W. Hutto, '91; "Symposium—Defective Hearing," May Secrest, '92, Jennie R. Smith, '94, and Louise Spohr, Third-year in 1895-6.

Ada Rice, '95, having resigned her place in the Randolph school on account of ill health, is succeeded by Lillian Secrest, student in 1890-91, and a graduate of the California Normal School.

Fred C. Sears, '92, who, as stated in these columns two weeks ago, went to Cornell University for special study in horticulture and botany, had no sooner entered upon his work than he received a call, long pending, to the Chair of Horticulture and Botany in Utah Agricultural College. He accepted, and reaching Manhattan on Friday, packed his effects for shipment and left for Logan yesterday. Mr. Sears has been Assistant in Horticulture at this College for four years past, and that he has performed his duties well is attested by the strong recommendation of Prof. Mason, the head of the Department. The heartiest good wishes of a host of friends follow him to his new and wider field of labor.

Board Meeting.

The Board of Regents was in session from Tuesday afternoon till Thursday noon, all the members being present. On Tuesday evening the Board and Faculty met in joint session, and the condition and wants of the several departments were presented.

Professor Hood was given permission to continue work on pump and windmills without expense to the College.

It was voted that the Legislature be asked for an emergency fund of \$15,000, and \$7500 each year for current expenses, and in case the Legislature fails to supply funds, the Treasurer and the Secretary are authorized to make such arrangement for salaries as may be found feasible, at not to exceed the legal rate of interest.

Capt. Cavanaugh was allowed to present a bill for organizing the College Cadets as a battalion of the State Militia.

F. C. Sears was granted leave of absence without salary, for the purpose of study, and Isaac Jones, B. S., was employed as his substitute in the Horticultural Department of the Station.

Authority was granted to confer the degree of Bachelor of Science upon W. O. Peterson.

The Superintendent of the Farm was directed to separate the well cattle from the diseased, as shown by Dr. Mayo's tuberculin test, and to allow no untested animal to remain with the well cattle, except young of cows already tested.

Prof. Lantz and Prof. Olin were given permission to engage in Normal Institute work during the summer vacation of 1897.

The following expenditures were allowed: The quarterly expenses of the Station as estimated by the Council; Chemical Department, apparatus, \$50; Department of Industrial Art, ambro curves, \$5; Mechanical Department, old iron, \$40; Horticultural Department, seeds, repairs, etc. \$55, photo materials, \$20.

Prof. Georgeson was authorized to purchase three Poland China gilts.

It was voted that the bill before the Legislature for improvements include \$1000 for machine tools in the iron shop, and \$250 a year for fencing.

The following resolution was adopted: "That this Board approve the effort now being made in the United States Senate for a more complete and permanent organization of the Scientific divisions of the Department of Agriculture under competent direction for definiteness and unity in researches and economy of administration."

The Board adjourned to meet on Tuesday, April 6th, 1897.

COLLEGE ORGANIZATIONS.

Student Editors—R. W. Bishoff, O. E. Noble, Wilhelmina Spohr.

Y. M. C. A.—President, S. J. Adams, '98; Vice-President, G. D. Hulett, '98; Recording Secretary, O. S. True, '98; Corresponding Secretary, J. M. Pierce, '98; Treasurer, R. B. Mitchell, '99.

Y. W. C. A.—President, Emma Finley; Vice-President, Maggie Correll; Recording Secretary, Ethel Wolfley; Corresponding Secretary, Mary Waugh; Treasurer, Lucy Cottrell.

Alpha Beta Society—President, E. Shellenbaum; Vice-President, Alice Shofe; Recording Secretary, Eva Philbrook; Corresponding Secretary, W. A. McCullough; Treasurer, F. J. Rumold; Critic, J. M. Westgate; Marshal, L. B. Jolley. Meets every Saturday afternoon in south Society hall.

Ionian Society—President, Gertrude Lyman; Vice-President, Mary Norton; Recording Secretary, Dora Shartel; Corresponding Secretary, Maude Barnes; Treasurer, Nannie Williams; Critic, Winifred Houghton; Marshal, Mary Waugh. Meets every Saturday afternoon in north Society hall.

Hamilton Society—President, L. G. Hepworth; Vice-President, V. Maelzer; Recording Secretary, Wm. Anderson; Corresponding Secretary, G. G. Menke; Treasurer, B. H. Shultz; Critic, W. L. Hall; Marshal, A. F. Kinsley; Board of Directors, A. C. Smith, S. J. Adams, H. M. Thomas, G. F. Farley, F. O. Woestemyer.

Webster Society—President, R. W. Bishoff; Vice-President, J. E. Trembly; Recording Secretary, Earl Butterfield; Corresponding Secretary, E. B. Patten; Treasurer, M. H. Horn; Critic, F. H. Meyer; Marshal, G. W. Owens; Board of Directors, S. Dolby, F. Zimmerman, G. G. McDowell, L. P. Keeler. Meets every Saturday evening at 7:30 in south Society room.

January 16th.

Promptly at 7:30 o'clock, the gavel in the hands of Vice-President Norton announced that the hour had arrived when the Websters should cease their jollity and begin business. After roll call, C. H. Lehmkuhl led in prayer. The inauguration of the newly elected officers was next in order, and was the event of the evening. The ceremonies were conducted by Marshal Lechner. President-elect Bishoff was then called to the chair, and responded to the calls for an inaugural with words well chosen and encouraging to the Society. The officers elect were then escorted to their respective positions by their predecessors with but little formality. R. Cook was then initiated to membership. The program opened with debate, "Resolved, That National Aid to Education Is Desir-

able." The affirmative was argued by J. H. Bowers and L. M. Werts; the negative, by J. A. Conover and Thurber. The Society decided in favor the affirmative. H. P. Neilson then favored us with some music on his "wind machine" and responded to a hearty encore. W. B. Chase delivered an oration that might have caused tears. J. M. Pierce read the beautiful allegory, "Vision of Mitza," written by Joseph Addison. The Reporter was edited by R. J. Peck with the motto, "He that writeth not for the Reporter when he hath been notified, the same shall be 'pulled.'" Some of the selections were, "A Kicking Calf," "The Board," "An Important Treaty," and "Autobiography of a Dog." After recess, G. W. Owens and C. Wheeler favored us with music, and C. C. Jackson's discussion ended the program. Prof. Willard was then called on for a short speech. He responded with a few well-chosen remarks. The Society then proceeded to elect a nobby Board of Directors. They are Samuel Dolby, Frederick Zimmerman, George Garfield McDowell, Lot Parker Keeler, and Otho Sprague True. After other business, the Society adjourned.

E. P.

January 9th.

The new year has opened with bright prospects for the Ionian sisters. A room full of bright, happy faces met President Houghton as she rose to call the Society to order, and all enjoyed the opening song. As a fitting tribute to the Giver of all blessings, a brief devotional exercise was held, led by Miss Emma Finley. After the roll call, which was unusually well responded to, Miss Ferres was initiated. The program, though necessarily short, was excellent. It was opened with a vocal solo by Miss Marie Haulenbeck. Miss Jeanette Perry, as committee on something original, produced, with the assistance of Misses Tacy Stokes and Gertrude Rhodes, a most amusing number of the program. All were glad to welcome Miss May Bowen back to her old place, and all were delighted with her music. The next number on the program was a short but excellent reading by Miss Mary Norton. The program was closed with a vocal solo by Mr. Hayes. The election of officers took much time, and might have been tedious to visitors, but was full of interest for members of the Society and those who were acquainted with the candidates. Miss Gertrude Lyman was chosen President, Miss Mary Norton Vice-President, Miss Dora Shartell Recording Secretary, Miss Maud Barnes Corresponding Secretary, Miss Nannie Williams Treasurer, and Miss Mary Vaughn Marshal. Miss Winifred Houghton was elected Critic by unanimous vote. There were few committees to report, and the next order under which any business was done was under propositions for membership, the names of Misses McCreary, Stump, Allingham, and Jaedicke being proposed. Roll call with quotations was omitted. Adjournment.

B. F. A.

January 9th.

After a long vacation of three weeks, Saturday afternoon found the Alpha Beta Hall filled with members and visitors, some who were there perhaps for the first time, and others who were again "at home." When President Shull called for order, a selection was rendered by the orchestra. After devotion, the next number was a quartette by Messrs. Shellenbaum and Clothier and Misses Gilkerson and Wilder. Anna Streeter then eulogized "Our Board of Directors." A visiting elocutionist being present, responded to an invitation to speak by giving the trial scene in the "Merchant of Venice," and being encored responded with two humorous selections, both of which were enjoyed, and all present seemed highly entertained. Josephine Wilder gave a reading, which was also of a humorous nature, and was presented in an interesting manner. G. D. Hulett and Kate Manly discussed the question, "Resolved, That an Elective Course is preferable to a Required Course." Good argument was produced on both sides. The Society was then favored with a piano duet by Misses Adelaide Wilder and Marian Gilkerson. The Gleaner, was presented by its editor, P. H. Rader. Some of the selections were: "In the Shadow of the Hall," "Modern Maude Muller," and "New Year's Resolutions." A recess of ten minutes was followed by the election of officers for the ensuing term, which resulted as follows: President, E. Shellenbaum; Vice President, Alice Shofe; Recording Secretary, Eva Philbrook; Corresponding Secretary, W. A. McCullough; Critic, J. M. Westgate; Marshal, L. B. Jolly; Treasurer, F. J. Rumold. Daylight had almost given place to darkness when the hour of adjournment arrived.

E. L. W.

The Crops and Weather for 1896.

BY C. M. BRESE, OBSERVER.

Crop Conditions by Months.—At the beginning of 1896 the ground was in fair condition; wheat looked well. The month of January was a warm one, with even temperature, and the plant held its own. February was also a month characterized by absence of sudden changes, and wheat looked well at its close. A good deal of plowing was done during this month. The last week of the month was unusually warm, and as a result tame grasses and wheat started growing vigorously, buds swelling; maples in sheltered places burst into bloom, but cold weather just at the close of the month checked this premature awakening and no damage resulted. The end of March saw vegetation but little further advanced than the beginning, with the exception of wheat, which was growing nicely. Tame grass was coming on slowly but needed rain. Oats practically all sown. Peaches and plums just ready to bloom. April was warm, windy, and wet. All this advanced vegetation very materially. By the middle of the month everything was growing rapidly, peaches and plums were past blooming, apples in full bloom, and all prospects first class. A few farmers had begun to plant corn. In another week, wheat was knee high and jointing and

MONTH.	MEAN TEMPERATURE.			RAIN AND MELTED SNOW.			BAROMETER.			WIND.		
	Normal.	1896.	Departure from Normal.	Normal.	1896.	Departure from Normal.	Normal.	1896.	Departure from Normal.	Normal.	1896.	Departure from Normal.
January	24.89	31.90	7.01	.77	.31	-.46	28.87	28.92	.05	6706	6731	25
February	30.21	36.09	5.88	1.06	.56	-.50	28.84	28.81	-.03	7132	7216	84
March	40.40	37.6	-2.74	1.30	.87	-.43	28.78	28.85	.07	9697	10681	984
April	53.56	61.52	7.96	2.72	5.49	2.77	28.71	28.70	-.01	9800	12607	2807
May	64.10	68.63	4.53	4.13	7.41	3.28	28.72	28.68	-.04	8715	9858	1143
June	73.41	73.19	-.22	4.48	2.63	-1.85	28.70	28.81	.11	7258	6480	-778
July	78.34	76.94	-1.40	4.73	5.39	.66	28.80	28.83	.03	6621	6464	-157
August	75.83	77.45	1.62	3.61	2.26	-1.35	28.81	28.83	.02	5799	7052	1253
September	67.57	63.77	-3.80	3.05	5.06	2.01	28.81	28.84	.03	7022	6535	-487
October	54.25	53.09	-1.16	2.28	5.13	2.85	28.81	28.84	.03	6875	6535	-340
November	39.52	37.39	-2.13	1.28	.91	-.37	28.82	28.90	.08	7380	8365	985
December	30.20	38.36	8.16	.84	.26	-.58	28.85	28.95	.10	7629	5788	-1841
Sums	632.28	655.99	23.71	30.25	36.28	6.03	345.52	345.96	.44	90634	94312	3678
Means	52.69	54.67	19.80	2.52	3.02	.50	28.79	28.83	.04	7553	7859	306

MONTH.	No. of Rains	Rain in Inches	Snow in Inches	Per Cent of Cloudiness	Prevailing Wind	Mean Temperature	Maximum Temperature	Minimum Temperature	Mean Barometer	Maximum Barometer	Minimum Barometer
January	5	.31	2.20	48.92	SE	31.90	65	-1	28.92	29.57	28.50
February	4	.56	4.00	30.46	N	36.09	81	1	28.81	29.26	28.32
March	5	.87	4.60	39.78	N	37.66	81	8	28.85	29.34	28.08
April	12	5.49	.....	44.44	SE	61.52	95	25	28.70	29.25	28.18
May	17	7.41	.....	43.01	S	68.63	93	40	28.68	28.94	28.40
June	8	2.63	.....	40.56	SE	73.19	98	46	28.81	29.13	28.48
July	7	5.39	.....	39.78	S	76.94	101	57	28.83	28.98	28.59
August	7	2.26	.....	34.94	S	77.45	107	52	28.83	29.14	28.52
September	11	5.06	.....	40.56	S	63.77	97	33	28.84	29.19	28.44
October	5	5.13	.....	32.26	S & SE	53.09	92	28	28.84	29.21	28.26
November	1	.91	.....	40.00	N	37.39	74	3	28.90	29.53	28.21
December	1	.26	.....	35.48	S	38.36	71	18	28.95	29.56	28.53
Sums	83	36.28	10.80	470.19	.....	655.99	.....	.....	345.96	.....	.....
Means	7	3.02	.....	39.18	S	54.67	.....	.....	28.83	.....	.....

stock being turned into pastures. Many orchards were entirely denuded of their foliage during the last two weeks of this month by the ravages of the canker worm. The wet weather prevailing almost constantly throughout the latter part of April and the whole of May, delayed corn planting and cultivation. It also made the harvesting of the first alfalfa crop of the season a difficult matter. At the close of May, wheat was ripening and looking well. Oats headed and promised an excellent crop. Corn grew slowly till about the 8th of June, when the ground was dry enough to admit of cultivation and the consequent killing of the weeds. It grew rapidly from that time to the close of the month, by which time most of it was laid by. Wheat harvest commenced about June 9th and ended ten days later. The crop was good. Oats, which was so promising at the beginning of the month, was by harvest time almost worthless, having been attacked by rust. Second cutting of alfalfa was harvested at end of month. The close of July found corn prospects of the very best, some haying being done, and third crop of alfalfa nearly ready to be harvested. An excellent crop of early potatoes assured, and peaches and grapes just coming into the market. The peaches are a good crop, and grapes the largest for years.

August was hot, dry, and windy. Corn cutting was done during this month, and haying carried on throughout the month. September was cool, with large rainfall. Wheat was coming up nicely at its close; pastures good as they had been all the season; stock having done unusually well; apples a fair crop; some corn being cribbed. October had a good rainfall, and at the close of the month wheat was in fine condition. Stock came off the pasture from the middle to the close of the month. Crop conditions remained about the same to the close of the year, the whole of the autumn having been perfection for stock feeding and husking corn. Corn, at the close of the year, is selling at even less than last year, the market price being from 12 to 14 cents.

Temperature.—The mean temperature for the year was 54.67°, which is 1.98° above normal. January was the coldest month, with a mean of 31.9°, and August the hottest, with a mean of 77.45°. The highest temperature was 107.5°, on August 8th; the lowest, 1°, on January 3rd; a yearly range of 108.5°. The latest killing frost was on April 3rd, an unusually early date; the earliest, September 28th, the growing season being 178 days long. This is several days longer than the average.

Precipitation.—The total rainfall, including melted snow, was 36.28 inches. This fell as eighty-three separate rains and snows. The normal rainfall is 30.25 inches; this gives an excess in the rainfall of the year of 6.03 inches. There was a light snowfall, only 10.8 inches falling during the year. The latest snowfall was on March 17th, when .10 inch fell. This had been preceded but three days by a fall of 3.5 inches. There was no fall of snow during November and December. May was the wettest month and December the driest one.

Cloudiness.—The per cent of cloudiness was 39.18. There were one hundred fourteen days that were clear; forty-nine that were entirely cloudy; twenty-two that were five-sixths cloudy; forty-seven that were two-thirds cloudy; thirty-four that were one-half cloudy; sixty-seven that were one third cloudy; and thirty-three that were one-sixth cloudy. January was the cloudiest month and February the clearest.

Barometer.—The mean pressure for the year was 28.83 inches, which is .04 inch above normal. The

highest monthly mean was in December; the lowest, in May. The maximum for the year was 29.568 inches on January 3rd; the minimum, 28.084 inches on March 27th, a yearly range of 1.484 inches.

Wind.—The wind was from the south two hundred seventy-one times; southeast, two hundred twenty-four times; north, one hundred fifty-four times; southwest, one hundred thirty-six times; east, ninety-six times; northeast, ninety-six times; northwest, sixty-five times, and west, fifty-six times, at the hour of observation. The total run of wind for the year was 94,312 miles, which is 3,678 above normal. This gives a mean daily velocity for the year of 257.68 miles, and a mean hourly velocity of 10.74 miles. The windiest month was April; December was the calmest. The highest daily velocity was 771 miles on April 10th; the lowest daily velocity was 61 miles on October 13th. The highest hourly velocity was 48 miles, between 2 and 3 P. M. on March 27th.

Farmers' Institutes.

Institutes have been appointed and assignments made from the College as follows:—

Overbrook, Osage County, January 21st and 22nd; Professors Mayo and White.
Wellsville, Franklin County, January 22nd and 23rd; Professors Georgeson and Will.
Peabody, Marion County, January 28th and 29th; Professors Walters and Mason.
Concordia, Cloud County, January 28th and 29th; Professors Graham and Mayo.
Hutchison, Reno County, February 4th and 5th; Professors Hitchcock and Nichols.
Stockton, Rooks County, February 4th and 5th; Professors Hood and Burtis.
Newton, Harvey County, February 4th and 5th; President Fairchild and Mrs. Kedzie.
Berryton, Shawnee County, February 11th and 12th; Secy. Graham and Mrs. Kedzie.
Haven, Reno County, February 11th and 12th; Professors Lantz and Popenoe.
Chanute, Neosho County, February 17 and 18; Professors Mason, Failyer, and Popenoe.
Cherryvale, Montgomery County, February 18 and 19, Professors Mason, Failyer, and Popenoe.

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PROPORTIONAL REPRESENTATION IN LAST FOUR PRESIDENTIAL ELECTIONS.

STATES.	1884.			1888.			1892.			1896.		
	Republican.	Democrat.	Greenback-Labor.	Republican.	Democrat.	Union Labor.	Republican.	Democrat.	Populist.	Prohibition.	Democrat.	Nat. Democrat.
Alabama	4	6		3	7		7	4		3	6	1
Arkansas	3	4		3	4		2	5	1	2	6	
California	4	4		4	4		4	4	1	5	4	
Colorado	2	1		2	1		2	2		1	3	
Connecticut	3	3		3	3		3	3		4	2	
Delaware	1	2		1	2		1	2		2	1	
Florida	2	2		2	2		1	3		1	3	
Georgia	4	8		3	9		3	8	2	5	8	
Idaho							1	2		1	2	
Illinois	11	10	1	11	10	1	11	12	1	14	10	
Indiana	7	8		8	7		7	7	1	8	7	
Iowa	7	6		7	6		6	7	1	7	6	
Kansas	5	3	1	5	3	1	5	5		5	5	
Kentucky	6	7		6	7		5	7	1	7	6	
Louisiana	3	5		2	6		2	6		2	6	
Maine	3	3		4	2		3	3		4	2	
Maryland	4	4		4	4		4	4		5	3	
Massachusetts	6	6	1	8	6		8	7		10	3	1
Michigan	7	6		6	6	1	6	6	1	8	6	
Minnesota	4	3		4	3		4	4	1	5	4	
Mississippi	3	6		2	7		1	6	2		8	1
Missouri	7	9		7	8	1	7	9	1	8	9	
Montana							2	1		1	2	
Nebraska	3	2		3	2		4	1	3	4	4	
Nevada	2	1		2	1		1	2		1	2	
New Hampshire	2	2		2	2		2	2		3	1	
New Jersey	4	5		4	5		5	5		6	4	
New York	17	17	1	18	17	1	17	18	1	21	14	1
North Carolina	5	6		5	6		4	6	1	2	6	
North Dakota							1	2		2	1	
Ohio	12	11		11	11	1	11	11	1	12	11	
Oregon	2	1		2	1		1	1	1	5	2	
Pennsylvania	16	13	1	16	13	1	17	14	1	20	11	1
Rhode Island	2	2		2	2		2	2		3	1	
South Carolina	2	7		2	7		2	7		1	8	
South Dakota							2	1	1	2	2	
Tennessee	6	6		6	6		5	6	1	6	6	
Texas	4	9		3	9	1	3	8	4	5	8	2
Utah										1	2	
Vermont	3	1		3	1		3	1		3	1	
Virginia	6	6		6	6		5	7		6	6	
Washington							2	2		2	2	
West Virginia	3	3		3	3		3	3		3	3	
Wisconsin	6	5		6	5		6	6		7	5	
Wyoming							2	1		1	2	
Total	191	203	4	189	204	3	186	211	41	6	224	514
Actual	182	219		233	168		145	277	22		271	176

PROPORTIONAL REPRESENTATION.

BY PROF. E. R. NICHOLS.

ABOUT four years ago, I gave the results of the three preceding presidential elections, assuming proportional representation in the election of electors. To these is now added the last election. Proportional representation, as indicated by the name, means that each party shall be given presidential electors proportional to the number of votes cast. In Massachusetts, for example, the vote cast by the respective parties was as follows: Republicans, 278,976; Democrats, 90,530; Populist, 15,181; National Democrat, 11,749; Straight Prohibition, 2,998; Socialistic Labor, 2,114; total, 401,548. This total, divided by fifteen, the number of electors to which the State is entitled, gives a quotient of 26,770. This quotient is known as the "electoral quota." The vote of each party is then to be divided by this quotient. In the example taken, 278,976 divided by 26,770 gives a quotient of 10 and a remainder of 11,276; 90,530 gives a quotient of 3 and a remainder of 10,020. This makes 13 electors, the other two are to be given to the largest remainders. The remainders are: Republican, 11,276; Democrat, 10,220; Populist, 15,181; National Democrat, 11,749; Prohibition, 2,998; Labor, 2,114. This gives one elector each to the Populists and National Democrats.

One of the objections to this system is seen in this case. The National Democratic elector was obtained for 11,749 votes, while the three Democratic electors cost the party 30,177 votes each. This plan of distributing the remaining electors, representatives, or whatever the officers may be, among the largest remainders is known as "forced fractions." This plan was tried in 1890 by the Swiss Canton of Ticino and abandoned the following year, because it was possible for the minor parties to divide themselves in

such a manner as to get more than their share of seats.

The Canton of Neuchatel in 1891 adopted a modified plan. This provides that the seats remaining after applying the electoral quota shall go to the party or parties casting the largest vote. It is evident that no system of representation can be perfectly fair, and yet proportional representation, perhaps with the Neuchatel modification, would seem to be far in advance of our present unwieldy electoral college. The difference between our present system and proportional representation is strikingly seen by comparing the last two lines of the table, "total" and "actual."

REMINISCENCES OF MY FIRST YEAR IN THE ARMY. III.

BY H. G. CAVENAUGH,
(Captain Thirteenth Infantry, U. S. A.)
Professor of Military Science and Tactics.

AT length the time came when we were to have our share in active operations. Early in March, President Lincoln came to Fortress Monroe and urged or ordered a plan of campaign against the city of Norfolk, Va., then held by the Confederates. General Wool, then in command of all the troops in the vicinity, substituted a plan of attack, which was decided upon, and a few days thereafter we received marching orders, made preparations by cooking rations, issuing ammunition, etc. When all arrangements were completed, which required but a few days, we were ordered to the Fort, and during the night of the 8th of May, 1862, were embarked upon transports and barges. The next morning about daylight we were disembarked and marched back to our camps where the tents had been left Saturday. This maneuver was repeated several times for the purpose of deceiving the enemy, and to lead them to suppose more troops had been ordered there as a

re-enforcement. Whether or not the ruse succeeded, I know not; however, during the afternoon and evening of the 9th we quietly embarked, and at daylight on the 10th we crossed the channel and landed at Ocean View (now quite a popular summer resort); that is, we landed about two hundred yards from the shore, and waded the balance of the distance to the beach. There were no wharves, and the boats drew too much water to get any closer to the main land.

After all the troops had landed, we took up the line of march for the city, distant about seventeen miles. The march proved to be a very severe trial to the men, being their first long one, with filled knapsacks, canteens, and haversacks. Sweltering with the heat and stifled with dust, a large number of articles were strewn along the route. I remember during one of the halts I unstrapped my knapsack to dispose of some of my plunder, for the purpose of lightening my load, and, after carefully looking over everything I had, in fact, all my worldly possessions, found about the only article I thought I could dispense with was a pair of white cotton gloves! So into the bushes they went. If some second-hand dealer could have followed us up, he would have been able to go into business with a very respectable stock of goods on a small amount of capital; as it was, I imagine we outfitted the negroes in that vicinity for several years.

However, we struggled along and eventually came in contact with the enemy. A slight opposition to our progress, by the enemy at Tanner's Creek, a few miles from the city, was welcomed by us, and we enjoyed an hour's rest in the shade, while the rebel battery that had disputed our crossing was being persuaded to retire, which it did in a short time. As the shell or shot did not reach us, we were sorry when the order came to continue the march. We reached the suburbs of the city late in the afternoon.

Inside the formidable and well-constructed earth works, built for the defense of the city, was the Mayor and deputation of citizens in waiting to surrender to us the city. You may imagine our surprise and gladness when we found ourselves in possession without a shot having been fired by us, for with a small force, had the enemy been so disposed, they could have not only checked us, but held the city. As I remember, we had less than four thousand men, no cavalry, and but one or two batteries of artillery.

That night we pitched our tents inside the outer works, posted our pickets, or outposts, and located our interior guards, and after a good hearty supper, we retired to our much-needed rest. About midnight we were aroused by a loud report of an explosion. The camp was soon thronged with men eager to learn the cause of the terrible report, the violence of which shook the earth. All we could obtain in the way of information was from the sentinels on post, who said that when they heard the explosion a tall column of fire shot into the air in the direction of Crany Island, which is at the mouth of the Elizabeth River and about three miles from Norfolk. After daylight we learned that our dreaded foe, the Merrimac, had been blown up by the enemy, who had, when they evacuated the city, set her on fire, and the almost invulnerable hull now lay at the bottom of the river.

About noon the next day we marched into the city, and our regiment was selected to act as Provost-guard. We were quartered in different buildings throughout the city. Many amusing things occurred. One I recalled particularly was the feeling displayed by the ladies toward our flag; they would not walk under it. If it was over the sidewalk, they would cross over to the other side. So, to make them recognize it, we stretched a rope from building to building, that the flag might be pulled either way. When they refused to walk under it and had gone across the street and about to pass, much to their surprise and chagrin, they found the flag over their heads. They would also so far forget that they were ladies as to throw berries or most anything else at hand at us while walking along the streets, when, a rule, we would very politely raise our caps and pass on without any further notice of the insult. Such politeness toward them soon eradicated their desire to act thus spitefully and gradually they opened their houses to us, as they found their fears of the Yankees were groundless, and that the hated foe were nothing of a more formidable character than well-behaved soldiers. Before we were relieved from duty in the city, the men of the regiment had become great favorites with many of the citizens, and when we were ordered away, I fear we left many sore hearts and not a few matrimonial engagements; at least one would judge so from the sad faces and tearful good-byes.

During the month of July, we were ordered and

went into camp at Suffolk, on the border of the great Dismal Swamp. It was not long before the hospitals were filled to overflowing with many cases of malarial disease, fully three-fourths of the men being sick.

On the 8th of September, very much to our gratification, we broke camp and joined the Army of the Potomac, after its disastrous campaign of the peninsula. We were identified with it thereafter in all its marches, campings, and battles until the surrender of the rebel forces at Appomattox Court House, April 9th, 1865.

Clean the Cellar.

If there is any portion of the farm premises which more than any and all others should be kept clean and neat it is the farm cellar. In many places neatness is very largely a matter of appearance or of convenience, but in the cellar it is primarily a matter affecting the health and happiness of the farmer and of every member of his family. Unnumbered cases of illness, many of which have terminated fatally, have had their causes traced directly to unclean and ill ventilated cellars and there can be no doubt that a great many cases in which the cause is so obscure that it is never fully determined, really originated in the same locality.

In many cellars the ground is wet after heavy rains and the air remains damp for long periods. Boxes, barrels and loose boards are in constant contact with the damp ground and the processes of decay are constantly going on. Even the walls are damp and mouldy, and the whole room forms a fitting place for the development of the germs of malarial, typhoid fever and many other diseases. These germs, however, do not long remain where they are formed, but float over the whole house and into the open air, while millions of others are being developed to follow the same course of distribution, and to carry suffering and perhaps death to many inmates of these dwellings.

It is true that a great many people are able to throw off the poisonous influences of these noxious exhalations, the same as some who are strong and well can successfully resist the contagion of diseases which weaker persons are almost sure to take if exposed, but there is always a risk, even to those who are in the best of health, in breathing impure air. If the ground is inclined to be moist the bottom of the cellar should be covered with cement.

Even in the driest cellar wood should not come in contact with the ground, but all boxes, bins and barrels should be set upon timbers or platforms laid upon brick or stone foundations. At this time of the year there should be a general clearing out from the cellar of all sprouting vegetables, damp or decaying boards, and rubbish of any and every kind that has been allowed to accumulate therein. The windows ought to be removed so as to secure a free circulation of air, the walls should be swept and whitewashed, and the entire room be made as sweet and clean as the kitchen, and then be kept in this condition throughout the year.—*Practical Farmer.*

Hired Help in Country Homes.

To be the hired help in a country home is a good thing. You will have the respect of the family. They have known you ever since you were a baby, and you have gone to school with the daughter, and she loves you. You can sit at the table with the family.

There are the daily papers, the new magazines, and the fashion journal on the sitting room table, and you have perfect liberty to read these when your work is done. You can thus keep in touch with the best thought of the day. You can cut your new woolen dress in the latest style, and the fashion journal will also keep you informed on the way to do your hair and trim your hat, and, best of all, you will grow into a healthy, happy, pretty woman, with a smile in your heart and on your lips. Some honest man, with good, rough, brown hands, which can keep poverty from you, will seek you for a wife—a man who has been thinking good thoughts out in the pure air, a man who is a "straight American" like yourself, and who has learned from his grandfather and his father how to reverence a good wife.

The city counter jumper, with his high collar, pasty face and insufferable, smirking mouth, his white hands and weak mustache, is not much when compared with an honest country farmer boy—no, not much.—*Exchange.*

Appearances.

It is an old saying that "appearances are deceitful." Like most proverbs this needs qualification. Appearances are sometimes deceitful, but the general rule is undoubtedly that things are as they appear to be. That appearances should sometimes be deceitful is quite natural, for those who desire to deceive must of necessity present an appearance calculated to effect their object. The lower order of criminals operating by violence and in the dark may disclose their character in their appearance; it is not necessary for a burglar, for example, to appear otherwise than in his true character, but the sneak thief, the confidence man and the embezzler, all of these are obliged to make their appearance deceitful.

Honest people are usually much surprised when they see for the first time a known criminal of this class. They have associated with criminality in their minds a vague idea of repulsive features, wicked looks, bad and ill-fitting clothing; but the criminal

who plays upon the confidence of men could not succeed if he had about him these supposed marks of identification. He takes good care of himself at the expense of other people, dresses well and cultivates good manners. In his case appearances are deceitful, for they must be so if he is to meet with success.

The embezzler also is usually a man of exceptionally good habits or reputation. If he were otherwise he would get but little chance to embezzle. But that is no reason why well-dressed and affable young men of good reputation should be viewed with suspicion. For one hypocrite who has adopted an appearance intended to deceive there are thousands whose appearance corresponds with their character. It is well enough to remember that appearances may be deceptive and therefore to withhold judgment upon men based merely upon their looks.

This applies as well to those whose appearance strikes one unfavorably as to those who make themselves attractive by manner or dress. The poorly dressed man may be the undeserving victim of poverty or misfortune, or he may be so absorbed in other and more ennobling thoughts as to neglect his personal appearance. This is a fault, it is true, but it is not a very grievous one compared with dishonesty or other crime. Justice to ourselves and others requires that we should give some, but not too much attention to appearances and that we should disabuse our minds of the idea that evil always appears as evil.

It sometimes appears in most attractive garb and judgment is required to avoid it. The well poised mind will seek some better evidence than mere appearance before passing judgment for or against any man.—*Baltimore Sun.*

The Shorthand Mania.

Boys on the farm, boys in country villages and the cities are afflicted with it by thousands. The business college cure doesn't prove effective. A dose of experience is the only cure. Those who get the fever and who take a hurried course in the principles of the fascinating profession almost always fail to fill lucrative positions which, in the "vision of fancy danced o'er their minds."

The wages of even somewhat experienced stenographers vary from \$5 to \$10 a week. But few get more unless they are unusually efficient. Most of the beginners, besides getting only \$5 a week, have to work as office clerks. There is little prospect of an advance in position. Yet it is for this agreeable outlook, with the probabilities that they will sit upon a stool in a lawyer's office for time eternal, that thousands of young people in this city, and, indeed, all over the country, have contracted the stenographic habit. It is almost as prevalent as the law and medicine habit, and it is sixteen to one that a very large proportion of the young men passed on the street are either law students, medical students, or shorthand students. Would-be reporters are attracted by the advertisements of these all-in-a-night schools, which advertise to teach the art fully in a few months for a small sum, usually about \$50. Many of these schools may be excellent institutions, but certainly the poor stenographers so much complained of cannot come from the schools that never issue a diploma unless the student is fully qualified.

Corn's Broadening Field.

In last week's issue of *The Farmers Voice* E. S. Fursman told of the new use of the pith of the cornstalk which had been found effective in the construction of ships for the American navy. Our readers will be pleased to learn that the cornstalk has been discovered to possess qualities which will create a new demand for it, not only for use as cell lose in the lining of warships, but in many ways never before dreamed of. No less a person than Mr. Cramp, the celebrated ship-builder of Philadelphia, is authority for the statement that the elements entering into the composition of the stalk of the corn could be utilized for the product of alcohol, cellulose, matings, carpets, paper, smokeless powder, and food for cattle superior to anything now on the market, besides many other things which he could hardly enumerate.

At a banquet given in Washington one evening last week, Mr. Cramp detailed the practical results of his experiments and accidental discoveries. Plants for the production of all these various articles, he said, could be erected for \$150,000 each, and they would consume all the cornstalks within a radius of twenty-five miles in any of the corn regions of the country. He proceeded to show that the direct benefits to the farmers of the six great corn growing States of the west—Kansas, Nebraska, Iowa, Illinois, Indiana, and Ohio—would be over \$225,000,000 per annum on an acreage of less than 40,000,000. Mr. Cramp said he was prepared to invest a very large sum of money in a chain of manufactories for the by-products of the corn, and that he would as certainly get his friends into the scheme with him.

Thus are the agricultural products of the county to be utilized and an ever-expanding market created for them which cannot fail to sustain prices and broaden the opportunities of those who till the soil. A diversity has many important uses, perhaps the chief one being that it makes men think along practical lines, resulting in experimentation, investigation, discovery, and invention. Dollar wheat and 50-cent corn may be forever things of the past, but if their by-products may be made to yield, as Mr. Cramp suggests as to corn, the ultimate result may be larger profits and more even markets.—*Farmer's Voice.*

Calendar.

1896-97.
Fall Term—September 10th to December 19th.
Winter Term—January 5th to March 27th.
Spring Term—March 30th to June 10th.
June 10th, Commencement.
1897-98.
Fall Term—September 9th to December 18th.

To School Officers.

The College Loan Commissioner has funds now to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioner and the State Agricultural College. Address C. R. Noe, Loan Commissioner, Leon, Kan.

GENERAL LOCAL NOTES.

The Hamiltons are rehearsing for their annual, to be held Saturday evening next.

President Fairchild has been kept from College duties for over a week by sickness. He hopes to be at his post in a few days.

Misses Gardiner and Harner, post-graduate students, attend the Pure Food Exposition in Topeka, today. Mrs. Kedzie is to read a paper during the Exposition.

The Hamilton Society has decided to throw the chapel doors open to the public on the evening of its exhibition, January 30th, dispensing with tickets of admission.

Mrs. Kedzie was called to Topeka on Saturday to appear before the Ways and Means Committee of the House in the interest of our proposed Domestic Economy building.

Prof. Sears writes from Logan that he is much pleased with the outlook at Utah Agricultural College, and that he has ample opportunity for interesting work along original lines, with a goodly appropriation to expend.

The *Students' Herald* staff is reorganized as follows: L. G. Hepworth, '97, Editor-in-chief; H. M. Thomas, '98, Literary Editor; Harriet Vandiver, '97, Associate Literary Editor; G. F. Farley, '98, Local Editor; Ary Johnson, '98, Associate Local Editor; G. G. Menke, '98, F. Zimmerman, '98, Business Managers.

Secretary Graham is preparing a set of graphic charts showing the growth of the College from 1879 to date, including growth in attendance, in equipment, in graduates, in teachers. Other charts show various interesting facts in receipts and expenditures, farmers' institutes, attendance by counties, experiment station plats, publications, etc. The Secretary will present these facts in a paper before a farmers' institute, this week, and will later revise and complete the charts for permanent record.

Prof. Walters spent Sunday in Lawrence with Mr. and Mrs. Emch. Prof. Emch has decided to accept the call to the Chair of Mathematics in the University at Biel, Switzerland, mention of which was made in last week's *INDUSTRIALIST*, and will leave for his new home as soon as he can close up his business affairs here. Prof. Emch is a mathematician of rare ability, and the University of Kansas loses a valuable man. While Prof. and Mrs. Walters regret the departure of their children for a foreign land, they are reconciled to the separation in a measure by the thought that the interests of the young folks are advanced by the change. May success be theirs, is the wish of many friends.

GRADUATES AND FORMER STUDENTS.

E. C. Joss, '96, is a partner with his brother in the hardware business at Fairview. He has become a "regular subscriber" to the *INDUSTRIALIST*.

Sam Kimble, '73, responded to the toast, "The Profit of Politics," at the banquet of the State Bar Association, at Topeka, Thursday evening.

W. A. Anderson, '91, was married January 12th, to Miss Ada Hood, of Liberal, Kans. Mr. and Mrs. Anderson are at home in Leonardville.

I. D. Gardiner, '84, and wife, Ida Quinby-Gardiner, '86, are moving to the Quinby farm near Wakefield. Mrs. Gardiner is visiting for a few days with her sister, Mrs. Mason.

G. K. Thompson, '93, of the Blue Rapids *Motor*, passes through town occasionally on his way to and from Topeka, where he is clerk to Senator Stocks of the Nineteenth District.

Bertha S. Kimball, '91, made five, and J. B. S. Norton, '96, four, of the drawings for the full-page engravings in the bulletin on corn smut from the Botanical Department.

F. R. Jolly, '95, travelling salesman for a Cincinnati house, writes from Keokuk of good business. He is working west, and expects to reach Manhattan about the first of March.

Lieut. J. G. Harbord, '86, Fifth Cavalry, has been transferred with his troop from Fort Clark to Fort McIntosh, Tex., 160 miles further down the Rio Grande river, where he expects to remain for two years which will complete the allotted five years of the company in the Department of Texas. Lieut. Harbord is Post Quartermaster.

E. H. Snyder, '88, editor of the *Highland* (Colo.) *Chief*, says of a classmate in a recent number: "D. W. Working, Secretary of the State Board of Agriculture, read a most interesting and valuable paper before the meeting of the State Grange in Denver, last week, entitled 'The Ideal Agricultural College.' From a perusal of the paper, it is easy to see that Mr. Working is a master of the subject, and that his ideals are high and thoroughly practical."

• Junior Class Rhetoricals •

Eighth

Division

January 23, 1897

March, "The Band Played On"
Cadet Band

ADELAIDE WILDER

Inside the Pyramids.....

C. P. KING

Bartlett's Pantaloon.....

GEORGE BROOKS

The Last Hairpin.....

W. T. POPE

Savonarola.....

Violin Solo, 4th Air Dancla

Amanda Culp

C. B. WHITE

The Slave and the Master....

JOSEPHINE H. WILDER

Why We Laugh.....

W. G. TULLOSS

The Relation

of Invention to Progression

ALICE E. WOLFLEY

Greatness.....

Quartette, "Away to the Fields"

Jeannette Perry E. B. Patten

Bertha Spobr O. R. Smith

F. ZIMMERMAN

The Tomb of Washington...

F. J. RUMOLD

Speech of Spartacus

to the Gladiators.....

J. M. HARVEY

The World and the School...

A. D. WHIPPLE

How I Learned to Skate.....

A Bulletin on Corn Smut.

Bulletin No. 62, from the Botanical Department, gives exhaustive experiments with corn smut, illustrated by ten full-page engravings.

SUMMARY.

The smut of corn is caused by the attacks of two species of parasitic fungi, the common corn-smut (*Ustilago Mays Zeae*), to which most of the damage is due, and sorghum-head smut (*Ustilago Reiliana*), comparatively rare on both corn and sorghum.

Common Corn Smut.—Table I. shows that smutted corn stalks bear one-third less grain by weight than clean stalks under the same conditions. In the comparison, all stalks with a perceptible trace of smut were included among the smutted stalks. Table II. shows that the smutted stalks are nearly as heavy as the clean stalks, the loss being in the grain.

The proportion of smutted stalks varies greatly, being in some cases as high as one-fourth, but this is unusual. Six per cent is a fair average. Two hundred and six thousand, eight hundred and twenty-six stalks counted during the three years, in about 500 fields, showed 9,716 smutted stalks, or 4.7 per cent. The average of all counts made in August gives, however, 6.2 per cent. The total loss then on the average is 2 per cent of the grain crop, assuming that the smutted stalks have one-third less grain than the clean stalks. During July, the smut appears chiefly on the leaves; later, it is most frequent upon the stem. The ears are less frequently affected but the damage is, of course, proportionately greater.

There is little difference in varieties of corn as to their susceptibility to smut.

The smut does not usually make its appearance on the corn till it is two months old. Observations later in the season show that, other conditions being equal, all corn becomes about equally smutted, regardless of the time of planting. That is, early corn becomes smutted sooner than late corn, but finally both show about an equal amount of smut.

The spores of the smut, the black or dark-brown powder composing the smut boil, germinate in water or better in manure solution. In this way each spore forms a large number of small colorless spores, which in turn may be blown by the wind on the corn plant. The little spores or germs gain an entrance at some part of the plant which is in an active growing condition, such as the central part of the cone-shaped mass of young leaves at the end of the stalk, the young ears or tassels, or even the brace roots. A smut boil appears about ten days after the entrance of the disease.

So far as our observations go, smut is more abundant in dry seasons, and in the dryer localities.

Smut is usually more abundant where the soil has been recently manured, or on corn growing near sta-

bles, barn yards, etc. Such patches often show a greatly increased percentage of smut.

The smut cannot be prevented by soaking the seed in fungicides, as is the case with oat-smut and stinking smut of wheat.

Since manure forms a favorable breeding ground for smut, fresh manure should not be applied to corn ground, especially in damp soil, nor should corn be planted too close to sources of manure. By proper care in this respect, and by burning as many of the smut boils as possible, the disease can probably be kept within limits which will not cause more than two per cent of damage. It seems scarcely practicable to do more, as the expense would be greater than the saving.

Sorghum Head Smut on Corn.—Appended to the observations on common corn-smut are some observations upon the much less common sorghum head smut on corn. This smut has as yet caused no serious damage.

A Farmers' Institute by Students.

Wishing to give something a little out of the ordinary line of rhetorical exercises, the fifth division of the Fourth-year Class on Tuesday held a moot farmers' institute. Topics were presented, according to assignment, by each member of the division. At the beginning of the third hour, the house was called to order by R. W. Clothier. By unanimous vote, L. G. Hepworth was chosen chairman of the convention, after which the following program was rendered:—

WAYS TO A COMPETENCY FOR A FARMER'S GIRL.

Are not the majority of farmers' girls in great need of some method of making their own spending money? How many do you know who have a competency provided for them with no thought of their own except to spend it prudently? I am sure every girl on a farm earns even this much and more, but the income on a farm is small, while the expenses are usually large. The surplus butter and eggs are exchanged for groceries, the products of the farm are sold to pay the interest on the mortgage, or to pay for some new labor-saving machinery the farmer could not possibly get along without; so the average western farmer's girl is obliged to get along without the many little things that add so much to her enjoyment and pleasure. Her clothing is always coarse and plain, bought with the intent of wearing well with no regard to beauty. How much she would like to have a new ribbon for her hair, or a pretty collar like she saw one of her girl friends wear. Would it not be better if she were given something to call her own, and have entire charge of it, and share all the profits. A great deal of the small pinching and distressing privations would be done away with if every farmer's girl was given some means to supply herself with spending money.

Suppose she is given a small piece of ground, exclusively her own. Gardening is a work that is both pleasant and profitable. Every girl requires the change of occupation which a few hours of gardening every day would give her. It is a delightful, womanly occupation, cleanly and health giving. The soil of the prairies is easily worked, and stones are so scarce that a traveler once said that when his dog saw one he stopped to bark at it. Gardening surely presents many attractions to those who are forced to depend upon the work of their own hands, and is far more desirable than constant sedentary employment. Flowers and early vegetables could be raised and sold to a good advantage. In the vicinity of cities and towns, a market for such commodities is always in demand. In Germany and Switzerland, women are earning their living as gardeners, not only at their own home, but in the employment of others.

I will relate a short story that you may see that gardening is a healthful occupation:

"Not long since a girl who appeared to be fatally ill with consumption went to live with some friends in the country. She amused herself during her moments of temporary strength by playing with the children at making garden-g. In a short time she found the health-giving properties of air and exercise, and gradually her lungs recovered. She gained flesh, and to-day is a robust woman, and she declares that a spade was her doctor. She is one of the most successful gardeners in Ohio at the present time."

Another way for a farmer's girl to earn her own spending money is by raising poultry. The business of poultry raising is a safe and pleasant one. Suppose she starts with a dozen hens. She must be careful not to select too fine a grade of poultry, as high-bred fowls, being of a delicate nature, are apt to catch cold if they get their feet wet. "The common barnyard fowl is the best. It will keep itself in fine flesh by running after its food." It has settled domestic habits, and is not inclined to be sick and lazing, and it lays a large, good-looking egg that is both rich and sweet. During the summer and fall these hens may run at large and have the grain fields to glean from. The flesh of such fowl is superior to any cake-fed birds. "Let them have a clean, dry, comfortable house, with nooks and corners for them to lay in, this answers as well, if not better, than a patent hen house with sanded floors, where the hens go up a flight of stairs to bed, and lay their eggs in nests as fine as jewel boxes." If a girl wishes to raise poultry on a large scale, there is money in an incubator, but machine-raised birds are inferior to the mother-hatched and the whole is a trouble, and often a serious loss. It is very easy for a farmer's girl to raise poultry, as it can be carried on without interfering with her domestic duties. If she lives near a city, she will probably receive high prices for early spring chickens. There is money in eggs and if her fowls are well fed and cared for when eggs are twenty-five and thirty cents per dozen, she can surely make a large profit.

There are a great many other ways to a competency of a farmer's girl which neither time nor space allow me to mention, but if any lady in the audience thinks of living on a farm I will gladly furnish her with any information needed on the subject.—*Fannie Carnell.*

THE NEED OF FARMERS' INSTITUTES.

I deem it a great privilege to greet you here today, and on behalf of the farmers of this community, to give you a hearty welcome. I deem it a privilege because I am standing before representatives of the best citizenship the country produces. In times of national peril, when professional men in general almost invariably shirk their duty, the farmer can always be relied upon to come forward and sacrifice his time, his fortune, and his life, if necessary, to the interests of the State. And it is for this reason that I say the farmer is the very best citizen the nation produces.

He should also be the most independent citizen we have because he produces the two things that are absolutely essential to life; namely, food and clothing. Upon the shoulders of the farmer rests the prosperity, the comfort, the life, of every community, of every state, of every nation, upon the face of the globe. It is true that in a certain measure he is dependent upon the members of society pursuing other avocations, but in no wise to so great a degree. He can produce his own food and clothing, build his own house, and has his own means of conveyance. In short, he can live with some degree of pleasure and comfort without the assistance of any other member of society.

The farmer has realized this independence, and so has done his work from year to year, attending strictly to his own affairs and paying little attention to what men in other lines of business have been doing. But these other men have been very active in perfecting organizations for the purpose of securing to themselves mutual advantages. The lawyers and physicians have organizations by means of which scheduled rates for services are fixed, and through whose influence legislation is secured which prevents the professions from becoming overcrowded. By means of organization the railroads have long since ceased to enter into competition with each other, and by acting in concert have been able not only to crush the greatest strike recorded in history, but reap a rich financial harvest by taking advantage of the necessities of visitors to the greatest industrial exposition the world has yet seen. Corporations and trusts are being formed for the purpose of buying farm products at the lowest

possible price and at the same time taxing the consumer to his most capacity. In fact, the whole world, either directly or indirectly, gets its living out of the farmer, and it would not be a very great exaggeration to say that all that has been gained to their lines of business by organization, represents just so much loss to the farming classes. The time is soon coming—yes, it is now at hand, when the farmers must organize in order to protect themselves. The farmers' institute is the stepping stone to such organization. It affords an opportunity for farmers to come together and become better acquainted with each other, and in this manner a feeling of unity of interest is created which will go a long way toward helping them to a solution of many of their most perplexing problems. The experience of the most intelligent and successful farmers of the country is brought to these institutes, where it becomes common property of all. In this way better methods of culture and of general farm management are disseminated, and less successful farmers learn how to make their land yield the best results for the least amount of labor and expense. The domestic life is also considered and will lead to the devising of means by which the great burdens of the average farmer's wife may be lightened and she may become less of a slave and more of the happy, intellectual house-keeper she ought to be.

Beginning with the farmers themselves and studying their relations to each other, the farmers' institute will broaden out until it includes the study of their relations to the great business world around them.

The farmers' institute of the future will discuss means by which an overproduction of any one commodity may be prevented by a proper regulation of its output. Methods of shipping will be devised by which the farmer will be his own commission man. There will be a committee at every session of legislature and Congress, whose duty will be to guard the interests of the farmers as assiduously as the interests of the bankers and manufacturers of to-day are now guarded.

But the program of this institute deals chiefly with better methods and management, and so I will yield the floor to other members who will take up various topics along this line and discuss them more in detail.—R. W. Clothier.

CORN CULTURE.

Although this is a question that interests almost every farmer of the middle west, especially those of the more productive States, such as Illinois, Ohio, Indiana, etc., I shall limit my subject to corn culture in Kansas. Owing to the fact that a large part of the State is situated in what is known as the arid region, corn culture in Kansas has certain peculiar phases, and involves characteristic methods which I will now speak of from the standpoint of a practical farmer.

First, the ground should be plowed in the fall, whenever convenient. This serves the double purpose of giving the ground time to settle and form a firm, smooth seed bed, and the killing of noxious insects, as the boll worm, or green corn worm, so conspicuous in the autumn in almost every corn field. The plowing should be moderately deep. I have found from six to eight inches to give the best results. If the plowing cannot be done in the fall, it is well to go over the ground with a float, or clod crusher. The ground should be made tolerably fine and allowed to settle a week or ten days before planting.

It is best to plant just as soon as the ground is warm enough to rapidly germinate the seed. A good corn crop cannot be grown without a rapid germination of the seed and a steady, vigorous growth throughout the season. These conditions cannot be obtained if you plant in a cold, wet, and cloddy seed bed, or in other words, plant too early. It has been my practice to plant from about the middle to the last of April. The time, however, must be determined by the season, especially where the spring weather is so variable as it is here. June and July are almost invariably very hot, dry months, and the farmer should try to plant early enough to have the corn as mature as possible when this dry weather sets in. If he can accomplish this without experiencing the evils of too early planting, he can then, by thorough and well timed cultivation, manage to get some consideration for his expense and labor almost any year, and should the year prove unusually favorable he gets his crop harvested before his neighbor and therefore gets the benefit of the early market.

In planting, mark the field in rows both ways and plant four or five grains in a hill, then thin this out to three stalks to a hill. A good rule for cultivating is cultivate enough to kill weeds and keep the soil from baking. It is often a good plan to harrow the ground just before the corn comes up, provided of course there is no tendency to foulness. Another harrowing should be given as soon as the corn is in the second leaf, while it is still too small to be worked with a cultivator. As soon as the corn is big enough, it should be given a good, deep cultivation, but subsequent cultivations should be made shallow so as not to injure the small, fine roots which lie close to the surface. About two inches is deep enough for surface cultivation. If the year is dry, it is well to continue this surface cultivation until, or even after, the corn is grown. This may be done by means of a one horse cultivator made to pass easily between the rows. This breaks up the surface and forms a mulch that enables the corn to stand drought much better than it otherwise would.

After the corn is matured, comes the problem of harvesting. Some people prefer to cut, while others prefer to husk on the hill. This question must be left to the individual to decide, but I will say my plan is rather a mean between these two methods. It is "topping." This saves the best of the fodder and leaves the corn in a convenient shape for husking.

A question often asked, and which I will now answer according to my own opinion is, "How much corn should you plant to the acre?" It is best to have about three kernels to the hill, and this will figure up to about one gallon of seed per acre.

I have spoken only of corn culture by the old method of plowing but would in most cases advise the use of the lister with an alternative of plowing every third or fourth year.

Perhaps there is no more vital question to the farmers in this region than that of fertilizing the soil. They have for years been growing crops on their land without returning any of the plant food thus taken away. I do not believe it is yet practicable to use artificial fertilizers as they are used some places in the east, but many of our fellow farmers do need to learn a lesson about the care and use of the natural fertilizers. The chief use of a fertilizer is to restore the nitrogen to the soil. This is also accomplished by the many different ways of green manuring.

You will notice I have not touched on irrigation. This is because it has not been a success except in certain localities, and therefore deserves no mention in a short paper by a practical farmer.—N. M. Green.

LITERATURE IN THE HOME.

The subject which I purpose to discuss today may appear to many of you to have little or no connection with the general topic of agriculture. I am aware that farmers are inclined to be severely practical and apt to look upon all investments which do not bring in a return in dollars and cents, as useless, if not an absolute loss. I do not understand me to say that the farmer is the only one afflicted with this intense practicality. It appears to be an affliction due to our time and present social system. Money riches seems to be the goal of modern man's ambition. It is but natural then that the farmer should consider all literature except that which furnishes him necessary information concerning the markets, the county news, and perhaps a stock book, of no practical value to him.

A common excuse given by farmers for not supplying their homes with more and better literature is that neither he, his wife, nor his children who are large enough to work, have time to waste in reading literature which is of no practical value to them. If the farmer would put in more time reading and studying the economic problems of the day, he would undoubtedly vote more intelligently, legislate more intelligently when placed in a position to legislate, and eventually, when the distribution of wealth is more equal, he could devote more of his time to literature and various other recreations.

Isolated from society as the farmer is, he naturally needs some mediums through which to keep in touch with the outside world. While the metropolitan weekly political paper may satisfy his literary desires, his wife and children require a different and higher standard which may be furnished by any of the excellent magazines of the day.

The habit of reading, if acquired at all, is usually acquired while young; therefore, every inducement should be offered children that will cause them to take an interest in good, wholesome literature. There is no reason why a farmer with moderate means should not possess a small library, and each library might contain elementary works on those arts and sciences which are apt to arouse the interest of the youthful mind—a few of the standard novels, and books of poems, and histories both ancient and modern. Such a library costs but a few dollars, and though it may not pay ten per cent interest on the capital invested as reckoned in dollars and cents, it will pay one hundred per cent as reckoned in mental development.

There is one kind of literature which should be assiduously

guarded against coming into the house, and that is what is usually termed the trashy story paper. Also the sensational publications best represented by the *Police Gazette* and the *Chicago Saturday Blade*. These poison the young mind with a false idea of life, honor, and morality, instead of elevating it, as should be the mission of literature in the home.—W. B. Chase.

THE FARMER—WHAT AND WHERE IS HE?

Primitive man wandered about from place to place picking up his scanty living wherever he could, but he soon became tired of this uncertain mode of existence and began to keep his own flocks, and cultivate a small patch of ground that he might be more certain of the necessities of life.

In America, we find the colonies first taking up farming, and then, as they grew stronger, they introduced manufacturing and other industries. Soon these farmers began to push westward, and as they cleared the way and furnished the foundation for other trades, they were followed by canals, railways, and steamship lines. Great cities sprung up all over the west, which became centers of trade, as other industries soon followed. But all these industries of the large cities, and indeed, the cities themselves, are dependent upon the farm for their prosperity. The farm holds the position in the industrial world that the heart does in a living body; for, let the heart stop beating or refuse to send the required amount of blood over the body, and how quickly the body will decay. So let there be a failure of crops upon the farm, and how quickly it is responded to by a business depression all over the country.

Now, let us see what kind of a man the farmer is, upon whom depends so much. We will find our typical farmer rather an independent man, for he owns his farm and implements, he is free to come and go as he pleases, his brain is not troubled about some great bond or money investment. He is busy, but always cheerful. There is no other occupation which calls for such a variety of work. The farmer is certainly in some respects a mechanic, a manufacturer, a merchant, and sometimes a lawyer, doctor, and minister. He is a mechanic because he handles tools and it is necessary for him to keep them in proper order. He is a manufacturer, and his farm is the great factory from which he turns the raw material, the earth and seeds, the rain and sunshine, into roots, grain, and fruit. He is a doctor, because he is often called upon to administer to the wants of his animals; a lawyer, because he must possess sufficient knowledge to verify titles; and a minister, because the father is always the priest of the family. Thus we find that farming, to be carried on successfully requires a great amount of skill and knowledge; and here lies the secret of why so many farmers are in debt and are living or simply existing upon what they can scrape together. Many of this kind of farmers are simple, good-natured men who have lived on the farm all their lives and have attended school only a few months all told. They think that all there is to farming is simply plowing the ground, planting the seed, and gathering the harvest. When they find that they cannot make ends meet, they are ready to blame some one, and here is where our modern politician gets in his work; he moves around among these farmers and tells them in his own quiet way that the government is responsible for all these hard times; that the political party in power has discriminated in favor of the trusts and millionaires, and are trampling upon the poor farmer; when the truth is that the politician has a grudge against some party or an interest in some business which he wants to develop. But the farmer allows himself to be carried away with that vivid description of the coming Utopia, and instead of being considered the conservative man he was once thought to be has become the prey of all politicians who have wild schemes to advance.—R. W. Bishoff.

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January 23rd.

Snowing, blowing, and snowing all combined could not prevent the Websters from having a good, lively session Saturday night. When Vice-President J. E. Trembley rapped for order, the room was not as well filled as usual, but all that were there were there for business. J. G. Haney led the Society in prayer. Under inauguration of officers, the new Board of Directors took the oath of office, and were then placed upon the platform as ornaments. Messrs. Craik, McKee, and Correll were elected to membership. Mr. McKee was initiated. The question, "Resolved, That the free text-book system should be adopted in our schools," was argued on the affirmative by E. C. Butterfield and A. Hutchinson; on the negative, by E. B. Patten and C. A. Scott. The affirmative won the question. Sam Dolby read an original poem entitled, "At Rest." "The Stowaways" was the title of a declamation delivered by Melbert. Holbert read an essay on "Zinc Smelting." C. Wheeler discussed the question, "Should the United States Maintain a Larger Standing Army?" Critic's report. Under unfinished and new business, numerous things were done, and adjournment followed at 10:30. E. B. P.

January 16th.

The Alpha Betas were called to order at the usual hour by Vice President Dille. Phil Fox favored the Society with a violin solo, after which Lucy Cottrell led in devotion. The officers elect for the ensuing term were then installed. President Shellenbaum responded to the call for "inaugural" with his usual thoughtful and earnest flow of eloquence. Under initiation of members, Miss Weeks and Messrs. Richard, Williams, and Dille became members. Miss Gill favored the Society with a piano solo. J. W. Christenson read a well-written and instructive essay upon "The Swedes, Their Manners and Customs." The next number was a male quartet composed of Messrs. Shellenbaum, Hulett, Jolley, and Cottrell. A review of a magazine article was presented by R. W. Clothier, subject, "Christianity as I see it." Amos Cottrell next entertained the Society with a humorous declamation. The debate, "Resolved, that Selfishness is the Mainspring to all Human Action" was argued on the affirmative by

W. A. McCullough, and negatively by J. M. Westgate. The Society decided in favor of the negative. An excellent number of the *Gleaner* was presented by its editor, Alice Shofe. "Fourth-year Botany," "College Don'ts," and "Packing a Trunk" were some of the articles which it contained. After a ten minutes recess, Myrtle Mather gave a vocal solo in a pleasing manner. The Society then spent twenty minutes in extemporaneous speaking, in which most of the members took part. After the regular routine of business, Miss Gilkerson gave a piano solo and the Society adjourned, at a quarter of six. W. A. M.

Horticultural Department Notes.

During the holidays, two coils of overhead piping were added to the heating surface of the lettuce house.

The harvesting of the first crop of lettuce was completed last week, and both benches have been reset to try the effect of the overhead heating. The first crop (which was ready for market about the middle of December, three months after the seed was sown) was sold for from three to five cents abunch of threeheads.

Some very nice asparagus has been grown under one of the benches in the tomato house.

The tomato plants, in spite of a rather chronic oedema, have succeeded in filling the too limited space between the glass and bench with a thick growth, and are now, with the help of artificial fertilization, "setting" a goodly number of fruits.

One of the benches in house No. 4 is set with grape cuttings, over one hundred and fifty varieties being represented.

In addition to the Floriculture class of twenty-eight, Mr. Baxter has special industrial students, W. J. Rhodes and F. Zimmerman, to oversee in greenhouse work.

It is interesting to notice throughout the greenhouse the extent to which ferns and mosses are establishing themselves in the crevices and on the walls wherever the moisture and temperature conditions are favorable.

The gravel roads upon the grounds which have been gradually "growing still thinner and thinner" from the action of wind, water and wheels, are being badly cut up by the narrow tires of the coal wagons and are in a worse condition than ever before.

Supplementary to some very interesting observations made last winter in the peach orchard, berry patch, and vineyard, daily thermometer readings are being taken now to show the variations in temperature within and without the dirt covering of the grape vines in the vineyard. T. W. Morse.

Farmers' Institutes.

Institutes have been appointed and assignments made from the College as follows:—

Peabody, Marion County, January 28th and 29th; Professors Walters and Mason.

Concordia, Cloud County, January 28th and 29th; Professors Graham and Mayo.

Hutchison, Reno County, February 4th and 5th; Professors Hitchcock and Nichols.

Stockton, Rooks County, February 4th and 5th; Professors Hood and Burtis.

Newton, Harvey County, February 4th and 5th; President Fairchild and Mrs. Kedzie.

Berryton, Shawnee County, February 11th and 12th; Secy. Graham and Mrs. Kedzie.

Haven, Reno County, February 11th and 12th; Professors Lantz and Popenoe.

Chanute, Neosho County, February 17 and 18; Professors Mason, Failyer, and Popenoe.

Cherryvale, Montgomery County, February 18 and 19, Professors Mason, Failyer, and Popenoe.

The *Youths' Companion* begins 1897 with an unusually good New Year's Number. It is especially strong in story features. A new serial, "Track's End," by Hayden Carruth, describes the adventures of a boy who was the only inhabitant of a little Dakota town all one winter; "Lon's Triumph," is an absorbing and sympathetic tale of school life, by Mary B. Downs, "Her Majesty's Feather Bed," by Annie Hamilton Donnell, sets forth the good sense with which a bright New England girl turned an embarrassing situation to her own advantage; "Afloat on Ice in Lake Superior" is a situation pleasanter to read about than to experience. C. J. Stone is the author. In addition to the fiction, Senator Lodge of Massachusetts gives the readers of *The Companion* an entertaining and instructive glimpse of "The Daily Life of a Senator." The paper is brimful of good advice, useful information and amusing anecdotes.

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"PLANTS AND THEIR CHILDREN."

BY PROF. A. S. HITCHCOCK.

TWO months ago I made a few remarks in these columns concerning "The Great World's Farm," a book which I took pleasure in recommending to the general reader. This week I wish to call attention to another book, "Plants and Their Children," by Mrs. Dana. The book is intended for children, and is to be used as a reader rather than as a text book. It is couched in simple and pleasing language, and illustrated by numerous wood cuts. The subject matter is arranged to suit the school year, beginning with fruits and seeds in the fall; roots, stems, and buds in winter; and reserving the leaves and flowers for spring.

To begin with, the author shows her listeners in imagination an apple, and then gives its history, how it first appeared as a little green knob in the center of an apple flower and afterwards grew and grew till it became a ripe apple. Then she proceeds to tell how the apple came to take the place of the flower. "This is what happened, and it is a true story. One morning last May a bee set out among the flowers on a honeyhunt." "As the bee left home this particular morning, it made up its mind that it would devote itself to the apple blossoms; for did you know when a bee goes flower visiting it gives all its attention to one kind of flower till it has finished that special round of visits?" In the same style the author relates the whole of the story concerning the pollination and fertilization of the apple flower. What does an apple tree live for? To bear apples, and the apples contain seeds, and the seeds make more apple trees. I do not quite agree with the author that an apple tree or any other plant lives only to bear seeds and propagate itself, but would rather say that the apple tree bears apples that there may be more life. The very act of living is in itself the immediate end.

Then we hear why the flesh of the apple is inedible while the seeds are immature, why this afterwards becomes sweet and juicy, and why the seeds are imbedded in the tough core.

The subject now changes successively to "some cousins of the apple" (pears and roses). "More cousins the apple" (cherry, plum, and peach), and "still more cousins" (chokecherries and wild plums). After a discussion of some more fruits, we come to "Why seeds travel." She asks, "Why does the burdock put its seeds into such a prickly case?" and then answers. The fruit of the dandelion is a seed sail-boat, the seeds of the milkweeds are air-hips, while the fruits of the ash and maple are provided with wings. The witch-hazel and squirting cucumber project the seeds into the air. The acorns are carried about by squirrels; the cocoanut floats for hundreds of miles in the water.

"Some strange stories." Yes, they are strange, and children are particularly impressed by such stories. We hear of the fruit of the poppy, rose of Jericho, and the castor bean.

Part II. deals with young plants. "How the baby plant lives." The children are supposed to be raising some young plants, and what they see is related in a fascinating manner. The bean is a "hump-backed plant baby" that pushes its curved stem through the ground first, and then carefully draws the leaves forth from the soil. The mangrove is an "impatient plant baby" that germinates before it leaves the mother plant.

Part III. The following topics explain themselves: Root hairs; roots and underground stems; above-ground roots; plants that cannot stand alone; well done, little stem; and others.

Part IV. Buds. We are introduced under the head of "astonishing buds," to the hidden buds of the sycamore, the eyes of the potato, the bulblets of the tiger lily, and the leaf buds of the bryophyllum, a kind of live-forever

Part V. Leaves. "What I wish you to learn this morning is, how to look at a leaf. Before using our brain rightly, we must know how to use our eyes. If we see a thing as it really is, the chances are that our thoughts about it will be fairly correct. But it is surprising how often our eyes see wrong."

I will leave you to guess "the most wonderful thing in the world." Under the following heads we have some elementary physiology: How a plant's food is cooked, a steep climb (ascent of water), how a plant perspires, how a plant stores its food, leaf-green and sunbeam, how a plant breathes. Next comes some ecology, the function of hair on leaves, function of prickles and poison, traps for catching insects.

Part VI. Flowers. What the author has been calling dust boxes, etc., of the flower are correctly named. Plant "packages" discusses unfolding buds. "Clever Customs" describes some curious adaptations to insects. Then we have stories about the strawberry, raspberry, blackberry, pea, and clover; "tricks" of flowers, such as small flowers combining in a head to be more showy, or the outer flowers of a bunch becoming more showy and less fertile, for the same reason.

In conclusion, I can say this is the best botany for children that I have seen.

SETTLEMENT OF THE UNITED STATES FROM THE ALLEGHENIES TO THE MISSISSIPPI.

1763-1830.

BY PROF. FRANCIS H. WHITE.

BY the middle of the eighteenth century the settlement of the Atlantic coast plain throughout its length from Maine to northern Florida, and westward to the Appalachian mountain system, had been accomplished. Of course the actual number of people occupying this extensive region was small, and there were stretches of country like the larger part of Maine, New York, northern Pennsylvania, Georgia, practically uninhabited except by Indians, while in other portions, like the sea coast of Maine, the western portion of Virginia, and the larger part of the Carolinas, the population was very scanty. There would seem to have been sufficient room east of the Allegheny mountains; but no, a restless desire to press into the western wilderness possessed many of the people, an impulse so strong that it made them willing to undergo the untold dangers and privations of a pioneer life and place a mighty wall of mountains between themselves and the older civilized communities. Undoubtedly this inborn desire to "move on" was further strengthened by land speculators who hoped to reap rich returns from securing large tracts of land and selling them at a considerable advance to would-be settlers.

In 1750 we find the Ohio Land Company of Virginia sending out Christopher Gist, a famous hunter, to explore the land west of "The Great Mountains." He made quite an extensive trip, descending the Little Miami to the Ohio and proceeding down that stream to the falls at Louisville: then going up the valley of the Kentucky, river he found a way through the mountains to the Blue Stone and thence returned by way of the Roanoke. His report was so favorable the Company determined to push forward settlements into the region. The great obstacle, of course, was the presence of the hostile French and Indians. A road was opened from Virginia in 1753, and with Gist as leader, a settlement was started just beyond Laurel Hill, Maryland. The efforts of the Ohio Land Company to settle Western Pennsylvania brought on the French and Indian War, resulting in the withdrawal of the French from the North American continent in 1763.

Lack of space prevents any detailed account of the individual settlements made in the trans-Allegheny region. It seems best to confine our attention to certain phases of this westward movement.

ROUTES TO THE TRANS-ALLEGHENY REGION.

Emigration to the country beyond the Appalachian system proceeded by four main routes: the first, up the Hudson and along the Mohawk until the mountains are passed and central New York reached. But the country from thence on to Lake Erie was far from easy to traverse, owing to the hills and bogs, and, in colonial days, danger from war-like Indians. Before the French released their hold on America, it was practically impossible to use this route, and hence the northern colonists, unable to expand westward as rapidly as the southern, were thrown back upon themselves, and used their surplus strength in commerce and manufactures.

The second route follows the upper Potomac into northern Virginia and Maryland, and thence crosses into southwestern Pennsylvania. Here the Ohio may be taken, and the movement further west easily continued.

The third route was southwestward through the rich and attractive valley of the Shenandoah to the head waters of the Roanoke, and over the principal ridges of the Alleghenies, then not difficult to cross. Descending into the valley of the upper Kanawha, and following it a short distance, the emigrant reached the valley of the upper Tennessee from which the way was easy to the Cumberland Gap. Once

through this, Central Kentucky, which seemed to Boone and his companions such a paradise, was at hand. The popularity of this route with the early settlers is explained by the fact that few Indians were likely to be met with on the way, and no permanent Indian settlements were located in Kentucky.

The fourth route was through Georgia around the southern end of the Appalachian system, and so into the Gulf region beyond.

METHODS OF TRAVEL.

The pack-horse and the flat-boat were the chief means of transportation during the first part of this period. Wagons could not be used, as the emigrant must make his way along forest trails and through regions difficult to traverse, when no roads had yet been built. The steamboat did not appear on western waters till 1811.

It is easy to imagine the appearance of one of these little parties of emigrants journeying through the forest and over the mountains to their new home: the pack horses laden with the household effects and the weaker members of the family, the men striding along beside them with their guns on their shoulders ready, when occasion offered, to bring down the game that approached sufficiently near, or defend themselves against the attacks of hostile savages.

To the strong and vigorous, no doubt a journey under such conditions presented attractive features; but who can picture the weariness, the pain, and the terror experienced by others as they made their way through forest and swamp, as they camped in rain and storm, or warily slipped through the Indian-infested regions.

It was not much better to be packed in a flat-boat with many other emigrants and their belongings, and spend weary days floating down the stream. There was danger in this method also. Should the boat approach too near the shore, or by some accident be separated from the rest of the fleet, or run into the shore, there was a reasonable likelihood of the occupants making the acquaintance of Indian weapons, or being reserved for a worse fate in the Indian villages.

SETTLEMENT OF THE NORTHWEST AND SOUTHWEST COMPARED.

A number of striking contrasts could be drawn between the regions north and south of the Ohio. The first Northwest immigrants were chiefly from New England, and, true to their past, settled in compact communities, on river banks when possible. Going out, as it were, under the aegis of the Federal government, and protected by its troops, Indian outrages were not frequent. Then, too, we must notice that the foundation of the social and industrial life of the Northwest was laid by the famous "Ordinance of 1787" before the settlers arrived.

It will be remembered that through the patriotic action of the States the Federal Government was given that stretch of country now comprising Ohio, Indiana, Michigan, Illinois, and Wisconsin. This Congress proceeded to organize and get ready for settlement by passing the "Ordinance of 1787" which forbade slavery, made provision for political, civil, and religious rights, while in the territorial condition, and promised to divide the region into States and admit them into the Union on equal terms with the original States when their population was sufficient. So helpful was the United States government in the early history of this region, it is not surprising that national feeling should be strong in the Northwest and the descendants of these settlers be numbered among the Nation's bravest defenders in the day of trial.

The first emigrants to the Southwest, to Kentucky and Tennessee, came chiefly from the backwoods region of Pennsylvania, Virginia, and North Carolina: and were, Presbyterian-Irish or Scotch-Irish stock, a brave hardy, independent folk. Accompanying and following these, came many of English origin from eastern Virginia and the Carolinas. A strong individualism appears in their method of settling the land. They built stockaded forts as refuges in case of Indian attacks, but established their homes out and away from this point, prizing as it appears, the independence and freedom resulting from separation. We note, too, that their political life was not shaped for them, but was largely self developed. Indian troubles in the Southwest were almost continuous for many years. The "dark and bloody ground" of Kentucky was not an exaggerated expression, but truly indicated the terrible trials of the early settlers. Though the land was not permanently occupied by the Indians, it was a favorite hunting ground of the tribes north and south, and numerous parties appeared from time to time where the inhabitants were few and committed the most frightful atrocities. Of course the settlers did not remain quiet under these

outrages, but retaliated; and hence the struggle was almost incessant.

It is interesting to note that the Scotch Irish and the New England stocks mingled in a number of places—certain parts of Ohio, for instance. President-elect McKinley is descended from such mixed ancestry.

THE DISPOSAL OF PUBLIC LANDS.

The establishment of public land surveys in the Northwest Territory was of incalculable value to homeseekers. In Virginia and North Carolina, each man surveyed his own land, and this practice was continued in Kentucky and Tennessee, with the inevitable result of fraud and litigation. In the Northwest, a corps of government surveyors did the work and the whole country was laid out in a most systematic fashion. An accompanying advantage arose from the provision that section number sixteen in every township was reserved for the maintenance of public schools therein.

Land speculation proved very attractive during this period. Unfortunately, the National and State governments encouraged rather than discouraged it by selling immense tracts of land to companies. These, of course, would endeavor to attract settlers and make money by the rise in land values. The abandonment of such a policy later in the government's history, and the substitution of one that tends to divide the land amongst the greatest number and grant it to actual settlers, marks a distinct step in advance.

Perhaps the most famous company was the one which purchased from Congress about a million acres lying along the Ohio and near the Muskingum. Most of the settlers brought by this company were former soldiers of the Revolution. The first party, headed by Rufus Putnam, landed from the "Mayflower" on April 7th, 1788, and commenced at once to lay out the town of Marietta. Roosevelt, the historian, calls attention to the fact, which should never be forgotten, that the earnest insistence of this Company that slavery should be prohibited in the Northwest territory was a very important factor in persuading Congress to insert that prohibition in the "Ordinance of 1787."

RIVER TRANSPORTATION.

Getting their products to market was a serious problem to the dwellers west of the Alleghenies. It was of little use to raise bountiful crops if nothing could be obtained for them. The long journey down the Ohio and the Mississippi to the Spanish city of New Orleans was bad enough, but the return against the stream or along the banks of the river, or around by the Gulf and the Ocean to Baltimore or Philadelphia, and then by land over the mountains to the starting point, was far worse. When New Orleans became ours in 1803, the West rejoiced exceedingly, but the advent of the steamboat was greeted with even more joy, for now the vexed problem of transportation was solved—goods and passengers could be transported cheaply and rapidly against the current.

John Filson, writing in 1784, claims from experience that a boat carrying forty tons, rowed by eighteen men, could make the trip from New Orleans to the Falls of the Ohio in eight or ten weeks at an expense of five hundred pounds. To bring the same amount by land and water from Philadelphia to the Falls of the Ohio would cost sixteen hundred pounds. A traveller visiting New Orleans in 1820 vividly describes the steamers which to him seemed like "fairy castles" and the "odd-looking crafts called arks." The latter, he says, are made of rough lumber and filled with the "grain, salted meats, spirits, tobacco, hemp, skins, and fruits of the vast region bordering on the Missouri, the Ohio, and the Mississippi, and brought down to the ocean. When they have reached New Orleans, and discharged their cargoes.....they are broken up and the planks sold. . . .The crew take their passage on one of the numerous steamboats...together with fish, salt, sugar, steel, iron, and all sorts of things suited to those multitudinous inland cities starting up every day in the heart of the Western country."

PROGRESS OF SETTLEMENT.

A glance at the United States Census maps showing the distribution of population at the time of each census from 1790 on, reveals some interesting facts which will be briefly stated. In 1790, tongues of settlement stretch out along the first three western routes previously mentioned. Georgia is largely in the hands of the Creeks and Cherokees. Patches of settled country appear on the Cumberland river and midway of the Ohio, while a few small settlements are shown on the Great Lakes. These areas of settlement are increased somewhat by 1800; new areas appear along the Mississippi; the Kentucky and Tennessee settlements are connected, and a slender tongue runs north from Pennsylvania to Lake Erie.

The 1810 map shows a steady growth of the areas already mentioned. The Indians, however, hold their own in the Indiana and Illinois regions and in Western Georgia and the Mississippi territory. The Louisiana purchase having transferred New Orleans to us, a considerable patch of population appears at that point. The 1820 map shows a substantial area of settled country from Lake Erie to the Gulf, passing between the Cherokees and the Choctaws in the South. The western bank of the Mississippi already gives evidence of quite a population, and settlers are establishing themselves along the Missouri, the Arkansas, and the Red. The 1830 map reveals but few blank areas between the Great Lakes and the Gulf, except the places occupied by the southern Indian tribes, and these are greatly contracted. It is clear that, though the Lake region is but scantily supplied with settlers, the movement across the Mississippi will now proceed rapidly.

The Farm vs. Town.

A correspondent of the *Breeders' Gazette*, writing "from this State on the subject of tenant farming" says: "It is a public calamity that owners of farms leave them instead of remaining and employing labor. There are many men that could be useful farm hands who have not the ability to run a farm as tenant."

It has always seemed to me a strange infatuation which so many farmers, comfortably fixed, show to get to town to spend their declining years. In the country, they are prominent and influential citizens; in the city they are nobody. The complaint is that they cannot get reliable help, and have to do too much themselves. My observation is, they don't try. They don't give their help a fair show, and they expect too much. If they would pay a hired man what they practically give a tenant, and allow him something of the same liberty, there would be no trouble in securing help.

In England, farming has always been considered a very attractive business; and the most active and successful farmers are very frequently men past seventy years. The farmer there, even though a tenant, is a business man, in the same sense as a merchant, or manufacturer, or banker. If his business is large, he has under him stewards, or foremen, who are the direct managers and superintendents of the labor employed, and who receive all directions as to the work. On smaller places, the farmer is his own superintendent; but he employs help enough to do all the manual labor.

What makes farming too often a drudgery here, is a lack of sufficient help. We expect too much from hired men; and even when they put in all the extra time demanded, there is scarcely help enough to do the work. It is true the low price of produce and the high price of labor renders some economy needful, but when the question is a comfortable living merely and how to get it most easily and most rationally, the farm should be given credit for what it saves, as well as what it brings in money.

Farms in this section rent, as a rule, for half the produce, delivered at the nearest market, the landlord paying taxes and usually the permanent repairs. Like new fences, repairs on buildings, etc. The tenant gets, in addition to his half the grain and hay, usually a house, fire wood and truck patch, pasture for his stock, frequently all the straw and corn fodder (to be fed on the place), and the use of stables, barns, etc., in connection with the landlord, the latter assuming all risk, or paying for insurance.

If the farm were credited with what these things are fairly worth to one occupying his own place or what they would cost in town; and if, in addition, half the gross produce of grain and hay, or meat and dairy products, are paid for labor, would not the farmer as a rule be better off, his farm better managed and better kept up, and yield, in fact, a larger income than when rented? I think it would; and, besides that, the country life, free from wearing labor, is incomparably more satisfying and every way more desirable.—*Farmer's Home Weekly*.

A Victory for Wide Tires.

Valuable results have been achieved by the earnest efforts of the Missouri Good Road Association, and it is especially to be commended for the practical experimental work carried on under its direction in testing the relative merits of wide and narrow wagon tires. Prof. H. J. Waters, Dean of the Agricultural College has submitted the results of actual tests of draft, summing up as follows: "By using the wide-tires, an average of fifty-three pounds draft is saved."

A horse is computed to exert a pull of 150 pounds for ten hours when traveling at the rate of two and a half miles per hour. On this basis, the wide tires save slightly more than one-third of the exertion of the horse.—*Breeder's Gazette*.

Prof. Waters might have added, too, that the wide tires make smooth roads, and, having made them, preserves them in that condition.

Homes should be made attractive. One prime cause of boys leaving the farm for the city life is the general unthriftiness and unattractiveness of the farm home. His education should be broadened rather than restricted, that he may not only see great possibilities in the farm rightly conducted, but also to enjoy his work and his home.—*New England Farmer*.

Calendar.

1896-97.
Fall Term—September 10th to December 19th.
Winter Term—January 5th to March 27th.
Spring Term—March 30th to June 10th.
June 10th, Commencement.
1897-98.
Fall Term—September 9th to December 18th.

To School Officers.

The College Loan Commissioner has funds now to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioner and the State Agricultural College. Address C. R. Noe, Loan Commissioner, Leon, Kan.

GENERAL LOCAL NOTES.

Prof. Will is on duty again after a week's sickness.
Engineer Gundaker is kept from work by the grip.

Prof. Walters has drawn plans for an addition to the Manhattan Grammar School Building.

L. Broquet, First-year, has been out of classes since the beginning of the term on account of sickness.

Mr. Bert Jones, of Jewell City, visited on Wednesday with C. V. Bunch and other students from that town.

Mr. W. E. Menoher, editor of the *Lincoln Republican*, visited about College Saturday and attended the annual.

Foreman House is able to be out today for the first time in two weeks, following a severe attack of appendicitis.

La grippe has had several students in its clutches for a week or ten days past, and gains new victims from day to day.

Bertha Spohr, Third-year, has acted as substitute teacher in the city schools for several days during the past two weeks.

Misses Day ('95) and Vandivert (Fourth-year) were "at home" to the girls of the Sewing Class last Wednesday afternoon in Mrs. Kedzie's office. Dainty refreshments "in pink" were served.

President Fairchild occupied his chair in the office on Thursday for the first time in almost two weeks. Prof. Failyer and Secy. Graham cared for the multitudinous affairs of the Executive Department during the President's illness, and Herbert F. Roberts, Post-graduate, met the psychology class.

A discussion of the question, "Resolved, that the United States should maintain the present gold standard," took place in class Saturday. The affirmative was defended by E. B. Patten and A. L. Smith; the negative, by Kate Zimmerman and A. D. Whipple. Both sides were ably argued. In the absence of Prof. Will, Mr. Roberts took charge.

The public chapel hour Saturday afternoon was occupied by Prof. Lantz, who gave a very interesting lecture on "Time and the Calendar." Time is the measure of duration, and is measured by the revolution of the earth on its axis. Each planet measures time for itself. If we had no sun, our standard of measurement would be very different. Also, if we were placed in space, there would be no time for us. Time and space are simply relative, and are the two attributes of the diety. The various methods of measuring the lengths of days, months, and years was discussed in detail. The origin, development, of the present calendar was of great interest, and further than being interesting, it was instructive.

Mrs. Kedzie gave an illustrated lecture on "Cheese and Salads" before the Domestic Science Club at its last meeting of which the report in the *Nationalist* says: "The different kinds and uses of cheese were described, and the demonstrator then made in the presence of the club that toothsome dessert dish, cheese-straws, baking them in the club kitchen stove. Salads were then taken up, particular attention being given to the dressing for salads. Mayonaise is the most popular dressing for all meat and some of the green salads. It is easily made, and leaving out the cream until wanted for use, may be kept any length of time. A dish of chicken salad was made before the Club, and when finished three young ladies served the articles with the addition of wafers and cocoa. This was the first lecture of the kind ever given before the Club, and Mrs. Kedzie gave some hope that a similar one may be expected in the future."

GRADUATES AND FORMER STUDENTS.

Clarence V. Holsinger, '95, and Olive Wilson-Holsinger, '95, rejoice in the birth of a son at their home in Rosedale.

D. G. Fairchild, '88, is making a tour through Sumatra up to Bangkok, Siam, to the island of Borneo, and back to Singapore, Sumatra, in the company of Mr. Lathrop of Chicago.

Louise Reed, '91, writing from 112 National Avenue, San Diego, California, states that she has been a resident of the Golden State since February last. She is principal of a kindergarten school near San Diego, while completing her course in the training school. She adds: "I read the *INDUSTRIALIST* every week with the same lively interest as of old."

E. F. Nichols, '88, sends in pamphlet form three papers reprinted from the *Physical World*, the official journal of Cornell University. They detail his experiments in measuring heat rays of great wave length, a method for measures in the infra-red spectrum, and the properties of the ordinary ray in quartz for measures of great wave length. Mr. Nichols expects to soon return from Berlin, when he has been pursuing

scientific study for two years, and resume his duties at Colgate University.

C. F. Doane, '96, writes from Madison, Wis., where he has been employed at the Dairy School, that he will at once enter the employ of the *Milwaukee Journal* as agricultural editor of the weekly edition.

Lora Waters, '88, is the author of an interesting paper on "Nature Study," printed in last week's *Nationalist*. A paragraph is reproduced: "What a world of thought may be opened up to the child mind, by an object lesson on a little seed, a seedling, a leaf, a twig, a piece of old iron, or the small insect from which it runs in fear. Each, when nearer seen and better known, unlocks to sages avenues for thought and investigation. That the child, the miniature man, is permitted to pass so many years of his life when his observing powers are most active and acute without becoming acquainted with the simple phenomena of nature all about him, is to be deplored. Is it not time the educational world awakened to the importance of natural science teaching as a factor in the intellectual and moral development of the child? Moral, I repeat, for many children become bad for the lack of something good to think about. Fill the mind with good, and evil will find no soil in which to grow. Surely no field furnishes so much wholesome food for the child as nature. A ramble over the fields, through the woods, with a thoughtful teacher alive to nature's beauties and acquainted with her mysteries, may teach the child more than weeks of books."

The Hamilton Annual.



For the last few weeks groups of busy Hamiltons were seen clustered about the halls with anxious expressions on their faces, indicating that the eleventh annual exhibition of that Society was rapidly approaching, and that they were determined to do their best to make this one not only the best of the season, but the best in the history of the College.

The Society had decided not to issue tickets to limit the crowd, but to let all come who would. So at seven o'clock there was a large crowd here awaiting the opening of the doors, and the Chapel was filled long before the time to commence; but they were all happy in being fortunate enough to secure a seat, and waited patiently for the curtain to rise.

Promptly at eight o'clock the College orchestra began to play a selection, and at the first notes of the music the curtain began slowly to rise and reveal to the audience a very attractively decorated stage. In the foreground were arranged groups of flowers, and back of these were hung draperies, and still further back was a large painting, resembling a street scene in a large city. The draperies were so arranged that it appeared that one was looking through a window upon a city street. The decorations were very artistically and cleverly arranged, and showed that the Hamiltons have much skill in this line.

When the music had ceased, Rev. R. J. Phipps gave the invocation, after which President Hepworth, in a few well-chosen words, welcomed the audience. He said the object of the annual was not merely for a show, but was to tell something of the work the Society has been doing, and what a typical Hamilton could do if he only tried.

The address of the evening, "The Value of Sacrifice," was then delivered by W. L. Hall, a part of which was as follows: "Life is a jest, wrote a merry philosopher, long ago, and we have kept those words till today, because they express the opposite to what we believe. If life was a jest for him, it must be a jest for every other man and every form of life that has existed. But this cannot be so, for what most impresses the thinker of today is the momentous earnestness of life."

"We find that works in every field of science have the most convincing evidence of a world-wide relationship, and all declare that all life forms are connected and traced back to a single starting point. From this far-away point has come life, branching here and there, but ever bringing out a higher form. The realization of this principle of life gives our own existence a broader significance, and we see that man is the final factor of the series that has entered into the world's progress. We can now see, upon looking backward, reasons for the existence of the lower forms of life; for they have been brought out to sustain or give character to some higher form. Although this has been done at a sacrifice to the lower forms, yet a purpose was accomplished, and so we find man the definite factor for which every other form of life has lived and rendered up its sacrifice. We find that man is an animal truly, an animal plus something else, for he possesses the agents of intelligence, thought, and love. Man who has come forth erect in form, symmetrical in structure, made in the image of God, will never be surpassed; but evolution has not yet finished her work. She has only finished the physical part, and now is to take up another line. Man himself is to take hold and help carry the work to a final completion, but it is by the help of evolution that man is able to carry on this work. Evolution has ever involved sacrifice. Those forms of life which could not adapt themselves to their environments have been sacrificed to those who could more fully do so. Man is what he is because he can adjust himself to Nature's conditions. He has discovered the force of steam which had existed ages before he

came, but which no other animal could develop. Man has brought about changes, he has torn down and sacrificed old structures that new and grander ones might be put in their place.

"From 1638 to 1648, Germany suffered from a cruel, bitter warfare, which devastated the whole country, and peace was only secured after both sides were exhausted. With that peace came the introduction of the fundamental principle of society, that man must not only live, but must let others live also. Was not this principle worth the sacrifice? Surely we will say it has been: when we notice how Germany has prospered under it."

"We find that the law of evolution applies on the ascending scale to man's nature. It makes the physical nature of man subservient to the mental nature, and both these subservient to the spiritual nature. Man's struggle now is not against the life of his fellows, but against baseness in his own and the lives of others. He does not work for the survival of his own life, but for the survival of the fittest in every life."

A quartette then sang a comical song entitled "A Catastrophe," which was appreciated by the audience, who heartily encored the boys.

The debate, "Is a Co-operative System of Industry Superior to a System Based on Competition?" was presented on the affirmative by G. F. Farley, who said: "Co-operation is the act of working together for one end. Competition is the act of seeking what another is trying to gain—mutual strife for the same object. Co-operation makes society paramount to all else, while competition is individualism, and is a form of warfare in all its destructiveness. In the war of competition, capital is the weapon. The poor man has no capital, and so must fight the battles of life single handed. The poor men know that capital controls labor, but they are powerless to resist it. In the early history of this country, when our industries were being developed, capital was competing with capital. Then every laborer had employment, and received good returns for his work. But now the scene has changed, and labor is competing against labor, and capital reaps the reward. We find that capital has combined to make labor cheap and prices high, and today it is ruling labor with an iron hand. Under competition, capital buys labor, pays its market value, and then takes all the profits. Under co-operation, capital will be bought, and those who produce it will share the profits. Which is the best for society—that men should own capital or that capital should own men? Capital was created as a servant of man. Co-operation will place it in its proper sphere. It will reduce strikes, because the individual employer will be dispensed with, and the society will become the employer. Although co-operation tends to deliver the poor man from the clutches of capital, it will not compete against capital; will war with no industry and disturb no interest, but it stands apart, does its own work, gathers its own harvests, and distributes the profits among those who learned them. It is held that it will be impossible to harmonize so many different creeds and religions. Successful co-operation must recognize no religion or creed, and freedom of speech, of thought, and of action are not to be tampered with. But co-operation will not make all men equal; this is not desired. There will still be a premium on genius. But it will give every man his just deserts and the fruits of his labor shall be his own; and as he labors, so shall he live."

The negative was put by Mr. William Anderson. "Competition! what is it?" he asks; and thus he goes on and tells us that it is the struggle which one makes for his own interests against that of another. "It is that which leads to the survival of the fittest. But, says our opponent, we must do away with competition. It is the cause of our social ills. Remove it and the millennium will be here. Co-operation will do this," he says. Let us see.

"In the first place, if co-operation is going to remove what they term 'evil warfare,' we must have universal co-operation or there would be competition between the different co-operative societies; and to have universal co-operation would mean universal slavery. The people would lose their individual rights and become a part of a great industrial army, controlled by bosses. Our opponents say we are making rapid strides toward co-operation. Well, I suppose we will have to confess that we are; because, if we will just look back a few years, we will remember how the Alliance Exchange was going to turn our industrial system into one of co-operation. (Laughter.) How did they succeed? Hardly a year had elapsed before the failures began. They were like Jonah's gourd, that grew up in a night and withered in a day, so they have sunk into oblivion."

"What is there superior in co-operation? Competition found man down on the level with the monkey. It took him and raised him to his present stage; while the monkey has remained in his primitive stage, because there was no ambition—there was no mental competition; and so it is in the industrial world, the strife to gain has led men to invent new machines, new methods, etc. Remove competition, and this stimulus for improvement will be withdrawn. This is not a mere theory, but a historic fact. In 1824, when tariff was high, our manufacturer did not improve his machinery, but when the duties were low he was forced to adopt improved methods of production."

"If co-operation should supercede competition, what would determine the value of goods? You might assemble all the politicians and statisticians of the world and they may figure and calculate; but after all they would see that prices are regulated by one thing and only one—competition. It acts like gravity, and brings everything to an equilibrium. Remove it, and all will be chaos. Remove it, and you remove individuality, and to remove individuality would mean stagnation. Let it alone, let it do its work, and we will

go on to a higher, to a nobler, civilization until the perfect state is reached."

A brass quintette rendered a selection which was highly appreciated.

The Hamilton Recorder was presented by H. M. Thomas. The paper was especially well written and contained many interesting articles. The motto:

I honor the man who is willing to sink
Half his fortune for the freedom to think;
And when he has thought,
Be his cause strong or weak,
Will sink 'tother half for the freedom to speak.

Some of the articles which appeared in the paper were "The Downfall of the Junior Boy," "American Humor," "Diseases of Students," and a "Story of a Marvelous Discovery."

An octette sang "Eight Bells at Sea," which was well appreciated by the audience, after which an oration on "Patriotism" was given by V. Maelzer, which was as follows:—

"Although it is some weeks before the birthday of the father of his country, and some months before Decoration Day and the Fourth of July, it ought not be considered improper to speak of patriotism at this season of the year. Unfortunately, this is something that is put on two or three times a year and then laid aside like an extra fine garment. It is not my purpose to take you through all the picturesque auras of an ordinary Fourth of July speech. But it is my object to show that there is more in love of country than extolling the heroes of the past. Each of us, though we are not in the throes of war, has an opportunity of becoming a patriot. The nation's enemies of today are not the enemies of the past. They cannot be met with a military array. The evil spirit which is forever attempting to dethrone justice and arrest progress is making itself manifest through other than martial effects. The grievances do not come from military depredations. They are of a deeper nature, such as a land filled with an abundance of the comforts of life and thousands of mouths crying for bread and employment. At the other extreme are the 'chosen few' who live in luxury and are unmindful of the cries of their brethren, while between them is the staunch middle class not yet dangerously small but moving toward that point with accelerated motion. Many intelligent and honorable characters do not enter the political arena because they would not, as they say, associate with its debasing influence. Laws are on our statute books that incorporate class distinctions. Private vices are prevalent that are far worse than invading armies. These are a few of the victories and strongholds of our opponents, the full significance of which can hardly be comprehended. To battle with such adversaries, we must cast aside the old modes of warfare and forge new equipments to suit the occasion. To do this, we must educate. A democracy of uneducated people is a social paradox. We must educate continually to keep abreast the ever-rising ideals. And we must teach in such a way that the knowledge will not be used for evil purposes. The weapons of the patriot of the closing century have been sword, bullet, cannon ball, and other material things. But as the twentieth century patriot steps across the threshold of the two periods we hope to behold him, armed in his right hand with justice, equality in his left, and girded about him a band of truth. This armor shall be of education woven from the beautiful threads of the history of our heroes, and warped with a clean conception of our nation's requirements and dangers. Upon his head will be a crown not of silver, not of gold, nor yet of both, but a crown of virtue, morality, honor, love of country, coupled with a generous sympathy for other nations. When he sallies forth thus arrayed he will not marshal all his hosts to make one grand sweep of the field, but his work will be in the home, in the schoolroom, in business, in politics, earnestly teaching filial love, patriotism, and the brotherhood of man."

The Hamilton Band then gave us a selection, "College Potpourri Bingo," which was accompanied with many funny transitions on the part of the players. The audience called long and loud for a repetition of the scene, but the time was growing too short and they had to be denied that pleasure.

A reading, "The Deathbed of Benedict Arnold," was rendered by H. C. Avery in a very eloquent and pleasing manner.

The play was a burlesque on the curfew ordinance, and was full of fun and kept the audience in a continuous uproar of laughter from start to finish. After the play, the audience dispersed, feeling that the Hamiltons had well sustained their reputation of being one of the best societies in the College.

R. W. BISHOFF.

Death of A. C. McCreary.

Janitor McCreary died in Chicago Friday afternoon following a surgical operation for facial neuralgia. The body was received here this afternoon, and was carried by the Odd Fellows to the Presbyterian church, where the funeral service was conducted by Rev. Mr. Phipps and President Fairchild. The music was provided by a choir from the four societies of the College. The body was buried in the Manhattan cemetery.

Andrew C. McCreary was a faithful officer of this College for ten years. He was a model Janitor. He early learned his duties, and in their performance was conscientious and thorough, and ever showed the keenest pleasure in their discharge. His strength of will and body, coupled with his willingness to do, seemed to fit him for any task. His manliness, though showing clearly in his kindly face and admirable physique, was best known and appreciated by those who came into intimate contact with him. He was thoughtful and obliging in his relation with College officers, and kind and sympathetic in his deal-

ings with students; and all came to admire him, even love him, for his good qualities of mind and heart.

Mr. McCreary's long struggle with disease is a familiar story to his friends. In the fall of 1892 he was attacked by facial neuralgia in an aggravated form, and at the end of the year resigned and went to California. He was better there, and returned the following summer, but soon went to Chicago for surgical treatment. The operation gave temporary relief, as did the other two, which followed at intervals of a year. The fourth and last operation was a most dangerous one, involving as it did the removal of a nerve cell in close proximity to the brain, making trephining necessary. The patient lived only three hours and a half after the operation.

Prof. Jones, a member of this Faculty from 1893 to 1895, writes from Chicago in answer to a telegram sent by Prof. Failyer: "Mr. McCreary was operated on yesterday [Friday], and survived the operation only three and a half hours. He regained consciousness, but said little or nothing. So far as the operation was concerned, it was without a flaw. Doctors Adams and Blount officiated. The outcome was a lottery, the physicians said, but 'Mac' said he would risk it, since his condition was unendurable. He was in good condition barring his specific ailment, and his constitution was in his favor. Let me add on my own responsibility, and as a sincere friend of our departed brother I find comfort in it,—all was done for him that the highest medical science of our day could do. I have heard men in rival medical colleges here speak most warmly of Dr. Adams' ability as a surgeon. He stands in Chicago's first rank, and that means to be among the first of the profession the world over. I recall what McCreary said to me one Sunday when he was here last year. Our conversation had drifted into religion, and he remarked with more warmth than usual, 'I tell you, this old religion is a good thing to live by, and it is good to die by.' No doubt it was with that assurance that he calmly lay down and went to sleep well prepared for the waking, whether in this life or in the life beyond."

Deceased was forty-five years of age. He leaves a wife and three children. His parents survive him. His life was insured for \$2000 in the Woodmen.

COLLEGE ORGANIZATIONS.

Student Editors—R. W. Bishoff, O. E. Noble, Wilhelmina Spohr.

Y. M. C. A.—President, S. J. Adams, '98; Vice-President, G. D. Hulett, '98; Recording Secretary, O. S. True, '98; Corresponding Secretary, J. M. Pierce, '98; Treasurer, R. B. Mitchell, '98.

Y. W. C. A.—President, Emma Finley; Vice-President, Maggie Correll; Recording Secretary, Ethel Wolfley; Corresponding Secretary, Mary Waugh; Treasurer, Lucy Cottrell.

Alpha Beta Society—President, E. Shellenbaum; Vice-President, Alice Shofe; Recording Secretary, Eva Philbrook; Corresponding Secretary, W. A. McCullough; Treasurer, F. J. Rumold; Critic, J. M. Westgate; Marshal, L. B. Jolley. Meets every Saturday afternoon in south Society hall.

Ionian Society—President, Gertrude Lyman; Vice-President, Mary Norton; Recording Secretary, Dora Shartel; Corresponding Secretary, Maude Barnes; Treasurer, Nannie Williams; Critic, Winifred Houghton; Marshal, Mary Waugh. Meets every Saturday afternoon in north Society hall.

Hamilton Society—President, L. G. Hepworth; Vice-President, V. Maelzer; Recording Secretary, Wm. Anderson; Corresponding Secretary, G. G. Menke; Treasurer, B. H. Shultz; Critic, W. L. Hall; Marshal, A. F. Kinsley; Board of Directors, A. C. Smith, S. J. Adams, H. M. Thomas, G. F. Farley, F. O. Woestmyer.

Webster Society—President, R. W. Bishoff; Vice-President, J. E. Tremble; Recording Secretary, Earl Butterfield; Corresponding Secretary, E. B. Patten; Treasurer, M. H. Horn; Critic, F. H. Meyer; Marshal, G. W. Owens; Board of Directors, S. Dolby, F. Zimmerman, G. G. McDowell, L. P. Keeler. Meets every Saturday evening at 7:30 in south Society room.

January 23rd.

At the usual hour the Hamilton Society was called to order by Vice President Maelzer. Owing to the stormy weather and the lecture in town, a goodly number of seats were vacant at the roll call. After reading of the minutes, and prayer by S. J. Adams, three gentlemen were initiated, Wagoner, Pratt, and Elling. The program of the evening was opened by the reading of an essay by Mr. DeArmond. It was followed by the debate, "Resolved, That a Tariff should be levied for Revenue only." Argued affirmatively by S. J. Adams and C. M. Ginter; negatively by R. M. Philbrook and E. A. Nelson. News, by W. Pool, was well selected and worth hearing. The select reading, by A. G. Kinsley, was interesting in nature and well read. After Critic's report, we were favored with music by the Tennessee Chorus. The program was closed by the reading of the Recorder, by W. E. Hardy, it was somewhat long, but showed merit all through the volume. The remainder of the evening was spent in parliamentary practice, and was quite exciting at times.

M. C. A.

January 23rd.

At the usual hour, Pres. Shellenbaum called the Alpha Beta Society to order. J. M. Westgate led in devotion, after which a quartette of Misses Gikerson, Tannehill, Agnew, and Mather, the latter accompanying on the guitar, furnished the Society with an excellent piece of music. Under initiation of members, Miss Hathaway and Mr. Root became members. A declamation was rendered by Mr. Bammes in an able manner. The Hamilton Band appeared in the hall, ready for action, and favored the Society with some music, which brought forth hearty applause.

Mr. Hulett next presented the Society with an essay, entitled, "Athletics and Agricultural Colleges," in which he showed the true relation of this class of colleges to athletics, and wherein they differ from other colleges. Miss Reed, in an impersonation, appeared as "Professor Snyder," and gave a lecture on "Women's Right," which was enjoyed by all. The debate, "Resolved, That vivisection is justifiable," was argued on the affirmative by Chas. Shull, who told of the advantage vivisection had been to biology, and enumerated the scientific truths which have been brought to light through its use. The negative was presented by Miss Ingman, who named a number of important discoveries which have been made without

the aid of vivisection. She also argued that we have no right to disregard life, even for the sake of science. The Gleaner was edited by H. A. Martin. After recess, Miss Helder favored the Society with a piano solo. The usual business was taken up, after which followed adjournment.

W. A. M.

January 22nd.

The visitors and members of the Ionian Society completely filled the room on Saturday afternoon, gathered there, no doubt, for rest and entertainment after the hubbub and torture of Chapel exercises. We hope they did not leave our halls disappointed; and their smiling happy faces betokened no such disaster. Pres. Houghton's farewell address was appreciated by all the girls. She has certainly reigned well, and deserves a crown of laurel. Called upon for "inaugural" as she took the chair, Gertrude Lyman responded with a speech which inspired us to work for a better Society. The program was opened by the "news items" by Laura Trumbull, followed with Clara Long's piano solo. A written medley, read by Maude Barnes, came next. Then Emelie Pfuetze favored us with one of her pretty songs. Debate, "Should the chief purpose of a prison be to punish or reform?" was argued well on both sides by Fannie Carnell, affirmative, and Bonnie Adams, negative. Piano solo by Maude Barnes, after which the Oracle was presented by Kate Paddock. It was an extra good number of our paper, and we all felt a little modest pride. The Hamilton band gave a selection, especially chosen for the Ionians and it is needless to say that the music was enjoyed. This was followed by Gertrude Lyman's vocal solo, and the program was closed with a sparkling piano solo rendered by Rena Helder.

B.

January 30th.

A number of the members of the Y. W. C. A. met in room S. for the regular meeting, Saturday, which was opened by singing two verses of No. 24, and one verse of No. 91 in Pentecostal Hymns. Miss Maggie Correll, as leader of the meeting, read a Scripture lesson and gave a short talk on the subject. After several prayers, followed by singing, the girls gave testimony as to what Christ and Christ's love had been to them. The sound of the college bell was a reminder of chapel exercises, and, after singing a verse of No. 31 the Association was dismissed.

M. W.

Accessions to the Library.

List of Private Claims against the United States, Vols. 1, 2, 3.

Haeuselmann's Letztes Zeichentaschenbuch.

Haeuselmann's Agenda für Zeichenlehrer.

Freien Zeichmen, Th. Wunderlich.

Ornamentale Pflanzenstudien, Ferdinand Moser.

Congressional Directory, 2nd Sess., 54th Cong., Dec. 12th, 1896.

Harvard University Catalogue, 1895 to 1896.

Eighth Special Report of the Commissioner of Labor, 1895.

Report of the Commissioner of Education, Vol. 2, 1894-95.

Loi du Rayonnement Solaire, 1896.

Joint-Metallism, Stokes. Donated by author.

Kansas Adjutant General's Report, Vol. 1, 1861-65. (Reprint.)

Kansas State Board of Agriculture, Vol. 15, 1895-6.

Messages and Papers of the Presidents, Vol. 2, 1817-1833.

Eleventh Census U. S. 1890, Vol. 50, pt. 14. Crime,

Pauperism, and Benevolence, pt. 1.

Minnesota State Horticultural Society, 1896.

Kansas State Penitentiary, 1895-96.

Wisconsin Labor Statistics, 1891-2, 1893-4.

The following volumes are donated from the library of John A. Anderson, deceased:—

Report of American Historical Association, 1890.

Report of Senate Select Committee on Interstate Commerce.

Testimony before Senate Select Committee on Interstate Commerce.

Methods of Business in the Executive Department

Vols. 1 & 3.

Decisions Relating to Pension Claims.

Messages and Documents of Navy Department,

Vol. 2, 1884-5.

Treaties and Conventions between the United States and other powers, 1776-1887.

Mineral Resources of the United States, 1887.

Bulletin of the United States Fish Commission, Vol. 5, 1885, Vol. 6, 1886, Vol. 7, 1887.

Hearings before the Committee on Ways and Means, 51st Cong. 1st Sess.

Consular Reports, Nos. 98, 99, 100, 1888.

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